Component Data Base for Space Station Resistojet Auxiliary Propulsion

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SFACE STATION RESISTOJET AUXILIARY
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ABSTRACT

The resistojet has been baselined for Space Station auxiliary propulsion because of its operational versatility, efficiency, and durability. This report was conceived as a guide to designers and planners of the Space Station auxiliary propulsion system. It is directed to the low thrust resistojet concept, though it should have application to other station concepts or systems such as the Environmental Control and Life Support System (ECISS), Manufacturing and Technology Laboratory (MTL), and the Waste Fluid Management System (WFMS). The report will likely be quite useful in the same capacity for other non Space Station systems including satellites, freeflyers, explorers, and maneuvering vehicles.

This report is a catalog of the most useful information for the most significant feed system components and is organized for the greatest convenience of the user.

INTRODUCTION

In August 1986 the resistojet was baselined for Space Station auxiliary propulsion. Propellant strategies and system designs have not been resolved. However, multipropellant capability has been baselined for the resistojets. This is predicated on the use of station waste fluids as propellants, simultaneously eliminating certain waste fluid management problems and resupply requirements 1,2. The field of options is open to a wide variety of gaseous and liquid propellants and propellant handling strategies. Propellant selection has been tentatively narrowed to: inert gases, carbon dioxide, nitrogen, hydrogen, oxygen, water, and hydrazine. Some of these propellants have unique characteristics and applications that make them attractive candidates for Space Station auxiliary propulsion. Others are waste products from other systems onboard or on orbit with the Space Station. Table I shows the annual waste gas production for a Bosch ECISS, Table II shows the same for a Sabatier ECISS 3 It is not expected that the exclusive use of waste products will be sufficient to meet the total impulse requirements of orbit maintenance. Therefore some propellant resupply for the exclusive use in the resistojets may be necessary if the main and auxiliary propulsion systems are to use different propellants.

Source strategies will be a major influencing factor in the selection of that propellant. The base propellant for auxiliary propulsion may be scavenged from other systems on the station. Hydrogen and/or oxygen may be derived from main propulsion storage, electrolysis of water or from Orbital Transfer Vehicle (OTV) tank farm boiloff. Nitrogen could be drawn from the ECISS or be shared from an onboard pressurization system. CO_2 will be recovered from the ECISS as a waste product of the breathing air recycling process. Methane may be recovered with the CO_2 depending on whether the Sabatier or the Bosch process is used. Water may be scavenged from the ECISS as well though not necessarily as a waste product. Inert gases, such as argon, helium, xenon, and krypton would be recovered from the MIL as waste products, along with Freon and potentially any of the other above listed propellants excluding hydrazine. Recovering and using propellants that might otherwise be waste

products with handling problems would provide the advantage of operational cost savings.

Hydrazine has the advantage of low volume storage and broad experience base. Nitrogen's largest advantage is its handling safety. Since nitrogen is the major component in breathing air, a nitrogen system could be at least partially routed through a crew compartment, allowing easy access for maintenance or repair, without immediate concern for contamination due to leakage. Because the prior mentioned waste fluids, and potentially others not mentioned or yet identified, will likely be recovered from the ECISS, MTL, and WFMS sections, a system will have to be developed for multipropellant operation. Matching components to multipropellant systems could be a challenge to the designer, particularly in the area of seat/seal material compatibility.

In order to reduce development cost and time it is desirable to reutilize existing component technology wherever possible. There is a significant number of components with space flight heritage. Enough of these components may have application to Space Station in their current design configuration or with minor modification to warrant a study resulting in compilation of all such available information.

The major components that apply to the Space Station auxiliary propulsion feed system include: connectors, tanks and accumulators, service valves, filters, pumps and compressors, pressure switches, check valves, pressure and temperature transducers, relief valves, pressure regulators, line and isolation valves, heaters, and gas generators. Fig. 1 compares the simplified propellant feed systems and their components. These are the components that will be cataloged in this report.

This report is intended to serve as a starting point for auxiliary propulsion design, trade studies, cost estimating, and planning. It is designed to contain as much data as possible for the purposes mentioned without being superfluous. The information contained herein was derived from many sources including: manufacturer's specifications and drawings, technical papers, and other data bases. Naturally, there are voids in the data provided. This was unavoidable as some data was not readily available during the preparation of this report. A disproportionately larger amount of effort would have been necessary to fill in all of the voids. It is up to the user to determine if, based on the data provided, further investigation is warranted to uncover additional data as required.

The information contained herein is organized into three sections for the sake of user indexing. The first is a list of the manufacturers covered in the catalog with last known address, phone, and contact for each. The second section is a fast index by component type including: feature specification, part number, manufacturer, and a cross reference to the next section. In this section, the difference between psia and psig is not always addressed because some data in certain categories was simply noted as psi. In such instances the gage and absolute notations are ignored and all pressures are noted as psi. The relative positions of these components in the index is correct to within one atm. The third and final section, the Component Data

Catalog section (pp. 55-381), is included as a microfiche supplement in an envelope stapled to the inside back cover of this report. Components within each type category are organized in 1) alphabetical order by the manufacturer, 2) in alphanumerical order by part number. In this section all available pertinent data for each component category is organized into data formats. Blank copies of these formats are given in the Component Data Sample Format section. The catalog section of this report is designed to be periodically updated. Contributors should use the blank formats to organize information to be changed, included or deleted. This information should be forwarded to Dan Briehl, Mail Stop 500-221, National Aeronautics and Space Administration, Lewis Research Center, 21000 Brookpark Road, Cleveland, Ohio 44135

In order to limit the field of coverage in the common component categories, general parameters have been defined for both gas and liquid feed systems, as follows: maximum system pressure - 6000 psi, maximum tank volume - 50,000 cubic inches, and minimum valve cycle life - 100. However, when regarding those components for which data is scarce, these parameters may be ignored. This allows the user a look at components that may at least be closely related to the components required. Further, some components that may have special applications will be included even though they do not conform to all of the parameters as defined. An example of this is the pyrotechnic valve with no cycle life. This valve could prove necessary in an emergency venting system. Component cost should be a significant factor in component selection, but because cost data has proved to be largely unavailable and cost restrictions are not yet defined; the catalog will not be limited by cost data.

There are other aspects to Space Station auxiliary propulsion system design to be considered when selecting components. The projected on-orbit life of the station is at least ten years. Components capable of a ten year service life would be logical candidates. The majority of the components qualified in space have not demonstrated a ten year service life with the throughputs projected for Space Station. To account for this, maintainability and redundancy become necessary considerations. The Space Station will be manned. Crew safety and therefore component safety and reliability are important considerations. The overall effort to develop, fabricate, and launch the Space Station will be costly. Component qualifications, cost, and weight are the balance of the important considerations. Unfortunately, at the time of writing, certain forms of component data were not readily available. Cost and reliability data will, in most instances, have to be acquired by the user of this document.

It will be desirable to reuse existing technology whenever possible to reduce development time and cost requirements in the development of the auxiliary propulsion system for Space Station. There are many qualified or qualifiable components available for consideration. This catalog should provide the propulsion system designer with a useful reference source to aid in design decisions.

ABBREVIATIONS AND ACRONYMS

abs - absolute

APS - auxiliary propulsion system

APU - auxiliary power unit

ARPCS - atmospheric revitalization & pressure control system

ASME - American Society of Mechanical Engineers

atm - atmosphere

BC - bolt circle

bhp - brake horsepower

Cn - discharge coefficient

CRES - corrosion resistant steel (includes stainless steel)

DI - deionized

ECLSS - environmental control & life support systems

ECS - environmental control system

EPR - ethylene propylene rubber

est - estimated

EQ SP - equally spaced

FEOD - flow equivalent orifice diameter

FS - full scale

G - gaseous

GPM - gallons per minute

HYD - hydraulic

i.d. - inner diameter

IOC - initial operational capability

L - liquid

lbf - pounds force

1bm - pounds mass

IH - left hand

LOA - length overall

LOX - liquid oxygen

LPM - liters per minute

max. - maximum

min. - minimum

MMH - monomethylhydrazine

MPS - main propulsion system

MIL - Manufacturing & Technology Laboratory

N.C. - normally closed

N.O. - normally open

nom. - nominal

NTO - nitrogen tetroxide

o.d. - outer diameter

OP - operational

PL - places

psi - pounds per square inch

psia - pounds per square inch, absolute

psid - pounds per square inch, differential

psig - pounds per square inch, gauge

RCS - reaction control system

RH - right hand

SCCH - standard cubic centimeters per hour

SCCM - standard cubic centimeters per minute

SCCS - standard cubic centimeters per second

SCFM - standard cubic feet per minute

Sh - sheet

SPDT - single pole double throw

SRB - solid rocket booster

std - standard

TBO - time before overhaul

TFE - tetrafluoroethylene (generic for Teflon)

UDMH - unsymmetrical dimethylhydrazine

WFMS - waste fluid management system

w/ - with

w/o - without

LIST OF MANUFACTURERS

Abex Corporation Aerospace Division 3151 West 5th Street Oxnard, CA 93030

Contact: M. W. Leisten - Product Sales Manager-Rotating

(805) 985-0217

D. L. Simpson - Product Sales Manager

Product: pump, valve

Aerodyne Controls Corporation 30 Haynes Court

Ronkonkoma, NY 11779

Contact: Richard B. Graeb - Director of Sales and Marketing

(516) 737-1900

Product: relief valve, check valve

Aeroquip Corporation
Aerospace Division
Jackson Plant
300 South East Avenue
Jackson, Michigan 49203-1972

Contact: Mark C. Schmidt - Sales Engineering Service Coordinator

(517) 787-8121 Product: fitting

Aircraft Porous Media Pall Corporation 6301 49th Street North Pinellas Park, FL 33565 (813) 522-3111 Product: filter Ref. 4

Bendix Fluid Power Division Allied Bendix Aerospace 211 Seward Avenue P.O. Box 457 Utica, NY 13503

Contact: Louis A. Steppello - Senior Marketing Representative

(315) 793-1353

Richard Padgett - Director of Marketing

Product: compressor

Brunswick Defense Division Brunswick Corporation 4300 Industrial Avenue Lincoln, Nebraska 68504

Contact: Thomas R. Flynn - Director of Marketing

(402) 464-8211 Product: tank

Cajon Company
9760 Shepard Road
Macedonia, Ohio 44056
Product: fitting
Representative: Abbott Valve & Fitting Co.
6090 Cochran Road
Cleveland, Ohio 44139
(216) 248-6515
Contact: John Fant - Sales Representative

Carleton Technologies, Inc. P.O. Box 28 East Aurora, NY 14052 Contact: James Walleshauser - Manager, Space Programs (716) 652-8100

Product: pressure regulator, relief valve

CEC Instruments Division
Transamerica Delaval Inc.
325 Halstead Street
P.O. Bin 7087
Pasadena, CA 91190-7087
(818) 351-4410
Contact: Robert A. Bachus - Senior Applications Engineer
(818) 351-4241
James A. Vail - Account Manager (Dayton, Ohio)
(513) 252-1987
Product: pressure transducer

Circle Seal Controls Brunswick Corporation P.O. Box 3666 Anaheim, CA 92803 (714) 774-6110 Product: check valve Consolidated Controls Corporation
Condec Corporation
15 Durant Avenue
Bethel, CT 06801
Contact: Peter D. VanVessem - Chief Project Engineer
(203) 743-6721
James L. Costanza - Manager, Technical Marketing (El Segundo, CA)
M. T. Petrozzi - Marketing Manager, Space Components (El Segundo, CA)
(213) 772-5301
Product: pressure regulator, pressure switch, pressure transducer, service valve, line/thruster valve

Deutsch Metal Components 14800 South Figueroa Street P.O. Box 61188 Los Angeles, CA 90061 Contact: Clement Law - Media Specialist (213) 321-3040 Product: fitting

Facet Enterprises, Inc. Filter Products Division 8439 Triad Drive Greensboro, NC 27409-9621 (919) 852-6800 Product: filter

Fairchild Control Systems Company 1800 Rosecrans Avenue Manhattan Beach, CA 90266-3797 (213) 643-9222 Product: pressure regulator Ref. 4

Fansteel, Inc. 5235 West 104th Street Los Angeles, CA 90045 (213) 670-1030 Product: tank ref. 5 Futurecraft Corporation 15430 Proctor Avenue City of Industry, CA 91747

Contact: James J. Castor - Engineering/Sales Manager

(818) 330-1611

Product: check valve, relief valve, line/thruster valve, pressure regulator

Garrett Corp. AiResearch Mfg. Co. Division 2525 West 190th Street Torrance, CA 90509 (213) 323-9500 Product: tank ref.5

HTL Industries, Inc. Allegheny International Company 101 East Wheeler Avenue Arcadia, CA 91006 (213) 574-7880 Product: service valve ref. 4

Hughes Aircraft Company Space & Communications Group Box 92919 Los Angeles, CA 90009 (213) 648-2345 Product: service valve ref. 4

ITT Neo-Dyn 21411 Prairie Street P.O. Box 3789 Chatsworth, CA 91311 (818) 998-8611

Contact: Jeffrey D. Anderson - Regional Sales Manager-Airborne

(313) 329-9082

Product: pressure switch

Lexair Inc. 299 Goldrush Lexington, KY 40503

Contact: C. W. Allen - President

(606) 278-5001

Product: compressor

Marotta Scientific Controls, Inc. Boonton Avenue Boonton, NJ 07005 (201) 334-7800 Product: pressure regulator ref. 4

The Marquardt Company 16555 Saticoy Street Van Nuys, CA 91409 Contact: Tom E. Hudson - Manager, Rocket Applications (818) 989-6400

Product: gas generator (water vaporizer)

Martin Marietta Corporation Denver Division P. O. Box 179 Denver, CO 80201 (303) 794-5211 Product: tank ref. 5

Metal Bellows Division Parker Bertea Aerospace Group 1075 Providence Hwy Sharon, MA 02067 Contact: John Barrett - Marketing Manager (617) 668-3050

Product: compressor, accumulator

Moog Inc.
Space Products Division
East Aurora, NY 14052-0018
Contact: Jay Hennig - Sales & Marketing Engineer (716) 687-4499
Douglas H. Morash - Engineering Manager (716) 652-2000
Product: line/thruster valve, service valve, pump

Norman Equipment Company
Norman Filter Division
9850 South Industrial Drive
Bridgeview, Il 60454
Contact: O. Garapolo - Vice President-Filter Division
(312) 430-4000
Representative: Stanley M. Proctor Company
Box 446, Twinsburg, Ohio 44087
(216) 425-7814
Product: filter

Paine Corporation 2401 South Bayview Street Seattle, WA 98144 (206) 329-8600 Product: pressure transducer

Pall Pneumatic Products Corporation
Pall Corporation
2200 Northern Boulevard
East Hills, NY 11548
Contact: Edward J. Murphy - Marketing Manager
(516) 484-5400
Product: filter

Parker Hannifin Corporation
Air and Space Products Division (Parker Aerospace)
18321 Jamboree Blvd.
P. O. Box C-19510
Irvine, CA 92713
Contact: William Hostetler - Marketing Manager
(714) 833-3000
Product: valve

Pressure Systems, Inc. 2017 Camfield Avenue Los Angeles, CA 90040 (213) 685-4520 Product: tank ref. 5

Purolator Technologies H R Textron 2323 Teller Road Newbury Park, CA 91320 (805) 499- 2661 Product: filter

Pyronetics Devices, Inc. OEA, Inc. P. O. Box 10488 Denver, CO 80210 (303) 693-1411 Product: service valve ref. 4

Resistoflex Company UMC Industries, Inc. Roseland, NJ 07068 (201) 226-7700 Anaheim, CA 92803 (714) 772-4700 Product: fitting

Rocket Research Corporation York Center Redmond, WA 98052 Contact: J. J. Galbreath (206) 885-5000 Product: gas generator (thruster) ref. 5 Rockwell International Space Division 12214 Lakewood Blvd. Downey, CA 90241 (213) 594-3838 Product: tank ref. 5

Snap-Tite Quick Disconnect Division Union City, PA 16438 (814) 438-3821 Product: fitting

Statham Division
Solartron Transducers
2230 Statham Boulevard
Oxnard, CA 93033
(805) 487-8511
Product: pressure transducer

Sterer Engineering & Manufacturing Company Box 39787 4690 Colorado Blvd Los Angleles, CA 90039 Contact: J. Pauly (213) 245-7161 Product: pressure regulator ref.4

Structural Composites Industries (SCI)
Harsco Corporation
325 Enterprise Place
Pomona, CA 91768
Contact: Vicki Lynn - Marketing Engineer
(714) 594-7777
Product: tank

Systron Donner Edcliff Division 1711 South Mountain Avenue Monrovia, CA 91016-0727

Contact: Gordon L. Glau - Applications Engineering Manager

(818) 358-4571

Product: pressure transducer, pressure switch

Tavco, Inc. 20500 Prairie Street Chatsworth, CA 91311 (818) 882-5411 Product: pressure regulator ref. 4

TRW
One Space Park
Redondo Beach, CA 90278
(213) 535-4321
Product: service valve, pressure regulator, gas generator (thruster)
ref. 4

Vacco Industries 10350 Vacco Street South El Monte, CA 91723 (213) 443-7121 Product: filter ref. 4

Valcor Engineering Corporation
2 Lawrence Road
Springfield, NJ 07081
Contact: Bernard W. Quail - Vice President Sales Engineering
(201) 467-8400
Product: valve

Weed Instrument Company, Inc.
707 Jeffrey Way
P. O. Box 300
Round Rock, TX 78680-0300
Contact: Bill Byrd - Division Manager-Nuclear, Aerospace
(512) 255-7043
Product: temperature transducer

Western Filter Corporation P.O. Box 3685 8968 Fullbright Avenue Chatsworth, CA 91313-6158

Contact: Phillip Flor - Fluid Power Sales Manager

(818) 886-8450 Product: filter

Whittaker Controls Division 12838 Saticoy Street North Hollywood, CA 91605 (818) 765-8160 Product: pressure regulator ref. 4

Wiggins Connectors Division Transamerica Delaval, Inc. 5000 Triggs Street Los Angeles, CA 90022 (213) 269-9181 Product: fitting

Wintec
Brunswick Technetics
2313 South Susan Street
Santa Ana, CA 92704
Contact: Harry Buehrle - Marketing Manager
(714) 966-0831
Product: filter, service valve

Wright Components, Inc.
An EG&E Company
Route 96
P. O. Box 160
Phelps, NY 14532
Contact: C. J. Weeks - Sales Manager
(315) 548-9501
Product: valve

FAST COMPONENT INDEX Fitting/Connector

<u>Pressure</u> (psi)	<u>Part Number</u> (series)	Manufacturer	Page
1000	3900	Aeroquip	55
1000	28	Snap-tite	63
1200 est	3600	Wiggins	65
1200 est	6300	Wiggins	67
3000-4000	D9855, D10255, DNR9855	Deutsch	58
3000-4000	D9856, D10256, DNR9856	Deutsch	59
3000-4000	D10036, DNR10036	Deutsch	60
3000-4000	D10045, DNR10045	Deutsch	61
5200 est	20	Wiggins	64
5400 est	6000	Wiggins	66
10,000	R44XXX, R45XXX	Resistoflex	62
14,400	V∞	Cajon	56
16,400	VCR	Cajon	57

FAST COMPONENT INDEX Tank/Accumulator

<u>Volume</u> (in ³)	<u>Pressure</u> (psig)	Part Number	<u>Manufacturer</u>	Page
1631	3600	Model 156	SCI	82
3008	4500	BLD999030	Brunswick Defense	70
3008	4000	BLD999040	Brunswick Defense	71
8181	4500	BLD999020	Brunswick Defense	69
8181	3300	BLD999050	Brunswick Defense	72
8181	3300	BLD999060	Brunswick Defense	73
10,200	1500 (G	irumman) LSC-270-821	Garrett AiResearch	76
11,000	3000	Model 200	SCI	83
13,442	300	80140-1	Pressure Systems	80
13,478	700	942-D-03	Fansteel	74
14,750	400	80801B36220-049	Martin Marietta	77
17,300	600	240-48202	Rockwell Internt'l	81
30,033	4875	BLD999010	Brunswick Defense	68
34,560	320	851240	Garrett AiResearch	75
35,300	890	80111-1	Pressure Systems	79
53,910	3000	88-4000500	Martin Marietta	78

FAST COMPONENT INDEX Service Valve

<u>Pressure</u> (psi)	Part Number	Manufacturer	Page
295	1-4-00-51-45	Carleton Technologies	86
315	12319	Wright Components	107
345	72855	Consolidated Controls	89
350	12183	Wright Components	106
365	1821-1	Pyronetics	103
415	325-7167	Hughes Aircraft	94
500	900490	Futurecraft	91
500	900491-1	Futurecraft	92
510	50-527	Moog	95
510	50-528	Moog	96
510	50-529	Moog	97
510	50-530	Moog	98
535	1176-16, 1832-1	Pyronetics	100
555	1831	Pyronetics	104
600	409708	TRW	105
1000	200791	Futurecraft	90
1250	1-4-00-51-27	Carleton Technologies	84
1250	1-4-00-51-43	Carleton Technologies	85
3015	71665	Consolidated Controls	87
3015	1811-4	Pyronetics	101
3615	72580	Consolidated Controls	88
4015	255620-3. 255921-3	HTT. Industries	93

FAST COMPONENT INDEX Service Valve (continued)

<u>Pressure</u> (psi)	Part Number	Manufacturer	Page
4015	1146, 1176	Pyronetics	99
5015	1819	Pyronetics	102

FAST COMPONENT INDEX Filter

Pressure (psi)	Rating (µm abs)	Part Number	Manufacturer	Page
50	5	11267-504	Wintec, Brunswick	136
80	20 (nom)	1736760-05	Facet	113
100	3 to 250 (nom)	1740001	Facet	114
150	-	PCS 13501 G24	Pall Corporation	117
150	-	8228-501	Wintec, Brunswick	135
180	5	AC-6875-4	Aircraft Porous Media	109
186	74	15204-516	Wintec, Brunswick	141
196	15	15241-526	Wintec, Brunswick	144
250	18	15241-508	Wintec, Brunswick	143
300	-	PCS 33501 G24	Pall Corporation	118
300	35	F1D10093	Vacco Industries	122
300	10	F1D10151-01	Vacco Industries	126
300	10	15267-603	Wintec, Brunswick	149
315	10	F1D10064-01	Vacco Industries	121
315	60	12204-508	Wintec, Brunswick	137
330	25	14228-621-3	Wintec, Brunswick	139
350	10	15241-694-1, -2	Wintec, Brunswick	147
396	10	F1D10182-01, -02	Vacco Industries	129
400	15	E-81916-4-15	Vacco Industries	120
400	10	15267-602	Wintec, Brunswick	148
415	25	15312-501-1	Wintec, Brunswick	151
415	25	15312-501-3	Wintec, Brunswick	152

FAST COMPONENT INDEX Filter (continued)

Pressure (psi)	<u>Rating</u> (μm abs)	Part Number	<u>Manufacturer</u>	Page
555	35	15228-572	Wintec, Brunswick	142
600	25	F1D10106-01	Vacco Industries	123
600	15	15241-685	Wintec, Brunswick	146
615	15	15241-647	Wintec, Brunswick	145
880	25	F1D10106-02	Vacco Industries	124
1000	40	F1D10132-01	Vacco Industries	125
1000	12	SL-81500	Vacco Industries	131
1765	15	AC-6875-855	Aircraft Porous Media	111
2000	10	14267-602	Wintec, Brunswick	140
3000	2x-200	4200T series	Norman Equipment	115
3000	2x-200	4300 series	Norman Equipment	116
3500	0.3	AC-A370-6	Aircraft Porous Media	108
3820	12	SL-81019	Vacco Industries	130
4000	12	F1D10178-01	Vacco Industries	127
4000	10	F1D10180-01	Vacco Industries	128
4000	15	S2-8846	Vacco Industries	132
4015	5	AC-6875-853	Aircraft Porous Media	110
4500	10 to 85	series 16510	Western Filter	134
5215	25	14228-502	Wintec, Brunswick	138
6000	-	F7008, F7009	Circle Seal Controls	112
6000	2x-200	4200T series	Norman Equipment	115
6000	10 to 75	series 6030	Western Filter	133

FAST COMPONENT INDEX Filter (continued)

<u>Pressure</u> (psi)	<u>Rating</u> (μm abs)	Part Number	<u>Manufacturer</u>	Page
6000	10	15267-604	Wintec, Brunswick	150
-	5/15	-	Purolator	119

FAST COMPONENT INDEX Compressor/Pump

Compression Ratio	Part Number	Manufacturer	<u>Page</u>
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2.36:1	33E08-1	Bendix	156
2.6:1	D41609	Metal Bellows	159
10:1	DX27312	Metal Bellows	158
22:1	P57228	Lexair	157
60:1	AP27V	Abex	155
100:1	AP05VC	Abex	154
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FAST COMPONENT INDEX Pressure Switch

<u>Pressure</u> switch off (psi)	Part Number	Manufacturer	Page
3.2	21SN04-93	Consolidated Controls	162
9.25	212C50-54H	Consolidated Controls	165
18	21SN04-22	Consolidated Controls	161
40	21SN41 series	Consolidated Controls	164
41.0	21SN22-1	Consolidated Controls	163
100	1103P, 1173P, 1193P	ITT Neo Dyn	168
300	2-54	Systron Donner	170
370	212C117-5	Consolidated Controls	166
600	1105P, 1106P	ITT Neo Dyn	169
5000	4-902	Systron Donner	171
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1 to 30 in. mercury	218C50	Consolidated Controls	167
0.2 to 20 in. H ₂ 0	610, 612	Systron Donner	172

FAST COMPONENT INDEX Check Valve

<u>Pressure</u> (psig)	Part Number	<u>Manufacturer</u>	<u>Page</u>
15	P15-698, P16-698	Circle Seal Controls	187
15	P17-698	Circle Seal Controls	188
75	P75-356	Circle Seal Controls	194
120	P3-319	Circle Seal Controls	182
130	P64-344	Circle Seal Controls	193
215	119T1-1PP-35	Circle Seal Controls	195
250	2249B-2MM	Circle Seal Controls	203
300	4022	Aerodyne Controls	173
350	P25-180	Circle Seal Controls	190
450	60616-19A	Futurecraft	207
500	P24-698	Circle Seal Controls	189
600	859T-8TT	Circle Seal Controls	201
600	869A-8TT/GA, -8TT2	Circle Seal Controls	202
600	8524T-6BB	Circle Seal Controls	205
600	8538A-16BB-9	Circle Seal Controls	206
750	P6-180	Circle Seal Controls	183
1000	P14-735	Circle Seal Controls	186
1150	P45-220	Circle Seal Controls	192
1250	2662-0001-13, -15	Carleton Technologies	174
1700	P1-602, P2-602	Circle Seal Controls	181
2500	K5120T-16TT-38	Circle Seal Controls	180
3000	K220T-6TT, -12TT	Circle Seal Controls	179
3000	P29-180, P30-180	Circle Seal Controls	191

FAST COMPONENT INDEX Check Valve (continued)

<u>Pressure</u> (psig)	Part Number	Manufacturer	Page
3000	220T-8TT	Circle Seal Controls	197
3000	220T-24BB-3, 220T-32BB-3	Circle Seal Controls	196
3000	249A-4TT(L)-15	Circle Seal Controls	198
3000	259T-4TT	Circle Seal Controls	199
3000	264T2-8TT-25, 264T2-16TT-5	Circle Seal Controls	200
3000	2633A-4TT	Circle Seal Controls	204
3250	P8-690	Circle Seal Controls	185
4000	P7-425	Circle Seal Controls	184
4500	HP280T-4TF4	Circle Seal Controls	178
6000	H249T1-4TT(L)	Circle Seal Controls	175
6000	H299T-16BB	Circle Seal Controls	176
6000	HP220T-8TT to -16TT	Circle Seal Controls	177

FAST COMPONENT INDEX Pressure Transducer/Gage

Max Pressure (psi)	Part Number	<u>Manufacturer</u>	Page
5	2653-0001-1, 2653-1001-5, 2653-2001-3	Carleton Technologies	208
18	2664-0001-11	Carleton Technologies	210
20	2730-0001-1	Carleton Technologies	211
20	2731-0001-5	Carleton Technologies	212
20	2767-0001-1	Carleton Technologies	215
100	4-930	Systron Donner	237
100	4-931	Systron Donner	238
150	(NAVORD) 3064422	Consolidated Controls	229
200	41SG78-7	Consolidated Controls	221
300	2733-0001-1	Carleton Technologies	214
350	2-201	Systron Donner	233
400	41SG51-2	Consolidated Controls	220
1200	41SG51-1	Consolidated Controls	220
1500	2732-0001-1	Carleton Technologies	213
1500	210-75-XXX series	Paine	230
1700	41SG156-1700A1	Consolidated Controls	227
2000	4-910	Systron Donner	236
2500	41SG149-2500A1	Consolidated Controls	225
3300	2657-0001-1	Carleton Technologies	209
3500	41SG155-1	Consolidated Controls	226
3500	41SG156-3500A1, -3500A2	Consolidated Controls	228

FAST COMPONENT INDEX Pressure Transducer/Gage (continued)

Max Pressure (psi)	Part Number	Manufacturer	Page
4000	41SG86-21, -22, -31, -32, -41, -42	Consolidated Controls	223
5000	415G144 series	Consolidated Controls	224
5000	PA732TC	Statham	231
5000	PA4088	Statham	232
5000	2-400	Systron Donner	234
5000	4-901	Systron Donner	235
6000	CEC 2200 A/G	CEC	217
6000	CEC 3000 A/G/S	CEC	218
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9500	41SG85-21 to -75	Consolidated Controls	222
10,000	CEC 1000 series	CEC	216

FAST COMPONENT INDEX Relief Valve

<u>Pressure</u> (psi)	Part Number	<u>Manufacturer</u>	Page
15	P13-533	Circle Seal Controls	243
16	2655-0001-5	Carleton Technologies	240
85	400233	Futurecraft	254
150	D500T series	Circle Seal Controls	242
150	P27-673	Circle Seal Controls	244
150	532T-4D-5	Circle Seal Controls	248
150	559B-X	Circle Seal Controls	250
150	559T-6D-18.8	Circle Seal Controls	251
200	3895	Aerodyne Controls	239
200	524 T-2MP- 7	Circle Seal Controls	247
250	P68-344	Circle Seal Controls	245
330	3111-0001-15	Carleton Technologies	241
400	52 0T1- 8D-175	Circle Seal Controls	246
400	559 A-1M- X	Circle Seal Controls	249
540	400214	Futurecraft	253
2500	5159T-4TT-155,	Circle Seal Controls	252

FAST COMPONENT INDEX Pressure Regulator

Inlet	ssure Regulated	Part Number	Manufacturer	Page
(psi)	(psi)			
215	100	2344344	Tavco	299
295	14.7	2144-0001-31	Carleton Technologies	261
295	8	2144-0001-33	Carleton Technologies	262
295	16.25	2362-0001-11	Carleton Technologies	263
365	50	34810	Sterer Engineering	295
490	315	146650-10, 146931	HTL Industries	283
500	100	2328-1	Pyronetics	289
515	35	2834	Pyronetics	292
665	7.5	2346340	Tavco	301
865	20	227705	Whittaker	304
900	100	1-4-00-58-11	Carleton Technologies	255
900	100	1-4-00-58-15	Carleton Technologies	257
1250	100	1-4-00-58-13	Carleton Technologies	256
1300	10	1-59-00-3	Carleton Technologies	259
1750	246	5660048	Parker Hannifin	288
1800	43	1-59-00-5	Carleton Technologies	260
2000	12	2832	Pyronetics	291
2015	60	33120-1	Sterer Engineering	294
2015	255	50750	Sterer Engineering	297
2500	16	1826001-19	Carleton Technologies	268
3015	250	280601	Marotta Scientific	286
3015	470	280778	Marotta Scientific	287

FAST COMPONENT INDEX Pressure Regulator (continued)

<u>Pressure</u>		Part Number	Manufacturer	Page
<u>Inlet</u> (psi)	<u>Regulated</u> (psi)			
3015	15	25210-1	Sterer Engineering	293
3015	375	234635	Tavco	298
3015	50	123035	Whittaker	303
3215	200	65-168	Fairchild Industries	272
3215	500	679000	Fairchild Industries	277
3261	5	601000	Fairchild Industries	275
3300	400/200	2726-0001-7	Carleton Technologies	266
3300	400/300	2729-0001-9	Carleton Technologies	267
3375	475	146650-11, 146709	HTL Industries	284
3515	240	332000	Fairchild Industries	273
3515	182	385000	Fairchild Industries	274
3515	285	994000	Fairchild Industries	278
3515	450	400176	Futurecraft	279
3600	475	400294	Futurecraft	282
3600	283	JPL 10000055	TRW	302
3655	247	6890	Consolidated Controls	269
3700	60	400236	Futurecraft	281
3815	700	2346334	Tavco	300
3915	38	617000	Fairchild Industries	276
4000	220	2566-0002-1	Carleton Technologies	265
4000	500	2828-0	Pyronetics	290
4015	255	6894	Consolidated Controls	270

FAST COMPONENT INDEX Pressure Regulator (continued)

<u>Pre</u> <u>Inlet</u> (psi)	essure <u>Regulated</u> (psi)	<u>Part Number</u>	<u>Manufacturer</u>	Page
4015	220	2566	Carleton Technologies	264
4500	630	226154	Marotta Scientific	285
4515	291	63-036	Fairchild Control	271
4515	25	46240	Sterer Engineering	296
4515	750	228045	Whittaker	305
5000	265	400210	Futurecraft	280
5000	1.2	1-29-00	Carleton Technologies	258

FAST COMPONENT INDEX Heater/Heat Exchanger

Watts Part Number Manufacturer Page

NO DATA

FAST COMPONENT INDEX Line/Thruster Valve

<u>Pressure</u> (psi)	Part Number	<u>Manufacturer</u>	Page
14.7	2763-0001-9	Carleton Technologies	314
16	2710-0001-1	Carleton Technologies	311
16.7	2874-0001-3	Carleton Technologies	315
20	2724-0001-3	Carleton Technologies	313
20	P58-717	Circle Seal Controls	320
20	P76-717	Circle Seal Controls	321
40	15607-4	Wright Components	357
43	V27200-520	Valcor	347
45	15554	Wright Components	354
50	15637	Wright Components	362
60	15 4 57 - 2, - 5	Wright Components	351
75	15751	Wright Components	367
85	200916	Futurecraft	332
150	9213T-2PP	Circle Seal Controls	323
175	5720004	Parker Hannifin	343
210	50-438	Moog	337
225	15607-2	Wright Components	355
250	P79-717	Circle Seal Controls	322
250	50-353	Moog	334
250	15626-2	Wright Components	360
250	15626-4	Wright Components	361
255	P38-717	Circle Seal Controls	318
255	5720002	Parker Hannifin	342

FAST COMPONENT INDEX Line/Thruster Valve (continued)

Pressure (psi)	<u>Part Number</u>	<u>Manufacturer</u>	Page
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280	15607-3	Wright Components	356
295	2665-0001-31	Carleton Technologies	308
295	V27200-195	Valcor	345
300	15398-1 to -4	Wright Components	349
310	51-122A	Moog	340
315	12240	Wright Components	348
350	50X366	Moog	335
350	51-128	Moog	341
350	15447	Wright Components	350
350	15548	Wright Components	352
350	15548-2	Wright Components	353
350	15750	Wright Components	366
396	15617-3	Wright Components	358
400	-	Consolidated Controls	325
400	-	Consolidated Controls	327
400	50-391	Moog	336
400	15617-5	Wright Components	359
400	15726-4	Wright Components	363
400	15726-5	Wright Components	364
400	15770	Wright Components	368
400	15770-5	Wright Components	369
400	15771	Wright Components	370

FAST COMPONENT INDEX Line/Thruster Valve (continued)

<u>Pressure</u> (psi)	Part Number	<u>Manufacturer</u>	Page
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420	51-109	Moog	338
420	51E110	Moog	339
450	200788-59, -69	Futurecraft	330
450	200851	Futurecraft	331
576	V27200-411	Valcor	346
600	-	Consolidated Controls	324
600	-	Consolidated Controls	326
1000	5720048	Parker Hannifin	344
1050	P54-717	Circle Seal Controls	319
1250	2722-0001-9	Carleton Technologies	312
2000	- .	Consolidated Controls	328
3000	P9-649	Circle Seal Controls	316
3000	200787-39	Futurecraft	329
3300	2666-0001-23	Carleton Technologies	309
3300	2666-0001-25	Carleton Technologies	310
4500	Model 403	Abex	307
7500	P22-406	Circle Seal Controls	317

FAST COMPONENT INDEX Gas Generator

<u>Pressure</u> (psia)	Part Number	<u>Manufacturer</u>	<u>Page</u>
44.1	T19093	Marquardt	372
300	3354474	Hughes Aircraft	371
320	MR-50M	Rocket Research	373
320	MR-111	Rocket Research	376
370	MR-111A	Rocket Research	377
395	MR-74A	Rocket Research	374
420	MR-103C	Rocket Research	375
600	MRE-4	TRW	379
1300	-	Rocket Research	378

FAST COMPONENT INDEX Temperature Transducer

<u>Max Temperature</u> (^O F)	Part Number	<u>Manufacturer</u>	Page
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-	A9515	Weed Instrument	381

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PROPELLAN'	r/fluid
pprogram	OPEDAMINA
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	PROOF
	BURST
MASS	
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DIMENSION	5
MATERIAL,	BODY
	SEAL
TUBE-FITT:	ING ATTACHMENT_
OPERATING	TEMPERATURE RANGE
VIBRATION,	, RANDOM
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LIFE, SERV	/ICE
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RELIABILIT	.'Y
LEAD TIME_ COST	
REMARKS	
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Pills DOOM	/14

TANK/ACCUMULATOR

MANUFACTU	RER	
PART NUMBI	BER	
DESCRIPTION		
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PROPELLAN:	IT/FEUID	
VOLUME		
PRESSURE,	OPERATING	
	PROOF	
	BURST	
MASS		
DIMENSIONS	IS	
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MATERIAL		
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	SIZE & TIPE	
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OPERATING	TEMPERATURE RANGE	
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ACCELERAT		
SHOCK		
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LIFE, SER		
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REMARKS		
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SERVICE VALVE

MANUFACTU	JRER
PART NUME	BER
DESCRIPTI	ION
QUALIFICA	ATION STATUS
PROPELLAN	NT/FLUID
PRESSURE,	, OPERATING
	PROOF
	PROOFBURST
DAMED ELC	261
KAIED FLC	DW
LEAKAGE	INTERNAL
DEATHOL,	INTERNAL
	EXTERNAL
MASS	
	
DIMENSION	IS
	PODY
MATERIAL,	DUDI
	SEAT/SEAL TFE
CONNECTIO	ONS, GROUND SIDE
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MOUNTING_	
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COST	
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FILTER

MANUFACTURER	
PART NUMBER	
DESCRIPTION	
QUALIFICATION STATUS	
PROPELLANT/FLUID	
RATING, ABSOLUTE	
PRESSURE, OPERATING	
PROOF	
BURST	
DIFFERENTIAL	
RATED FLOW	
THROUGHPUT	
LEAKAGE, EXTERNAL	
MASS	
DIMENSIONS	
MATERIAL, BODY	
ELEMENT	
PORTS, INLET	
OUTLET	
MOUNTING	
OPERATING TEMPERATURE RANGE	
VI BIGITINO 12 II DIGITOTA 10 I CO	
VIBRATION, RANDOM	
ACCELERATION	
SHOCK	—
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LIFE, SERVICE	
CYCLE CYCLE	—
SHELF	
RELIABILITY	
LEAD TIME	
COST	—
REMARKS	
DATA GOVERNE	
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COMPRESSOR/PUMP

MANUFACTURER_
PART NUMBER
DESCRIPTION
QUALIFICATION STATUS
PROPELLANT/FLUID
PROFEDERAL/LEGID
DECCIDE MAY INTER
PRESSURE, MAX INLET
MAX OUTLET
RATIO
RATED FLOW
LEAKAGE, INTERNAL
MASS
DIMENSIONS
MATERIAL, BODY_
SEALS
INTEGRAL CHECK VALVE
PORTS, SIZE & TYPE
MOTOR, VOLTS
MOTOR, VOLTSWATTS
POWER OUTPUT
ELECTRICAL CONNECTION_
RPM
DUTY CYCLE
COOLING METHOD
MOUNTING
OPERATING TEMPERATURE RANGE
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VIBRATION, RANDOM_
CINE
ACCELERATION SINE
SHOCK
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LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
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PRESSURE SWITCH

MANUFACTUE	RER
	ER
DESCRIPTION	ON CONTRACTOR OF THE PROPERTY
DECONTE	
OUNT TETCA	TION STATUS
QUALITICA.	
DDODEL LAND	r/FLUID
PROPELLAN.	./FLUID
PRESSURE,	OFFRESET
	RESET
	MAX OPERATING
	PROOF
	BURST
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MASS	
DIMENSIONS	
MATERIAL	
PORT, SIZI	E & TYPE
VOLTAGE	
WATTS	
	L CONNECTION
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LEAD TIME	
COST	
REMARKS	
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CHECK VALVE

MANUFACTUR	ER
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DESCRIPTIO	N
QUALIFICAT	ION STATUS
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DDODET LANT	/FLUID
LICITION	,11012
PRESSURE,	OPERATING
	CRACKING
	PROOF
	BURST
RATED FLOW	
LEAKAGE, I	NTERNAL_
E	XTERNAL
MASS	
DIMENSIONS	
MATERIAL,	BODY
	SEAT/SEAL
	SPRING
PORTS, SIZ	E & TYPE
MOUNTING	
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OPERATING	TEMPERATURE RANGE
VIBRATION,	RANDOM
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REMARKS	
	
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PRESSURE TRANSDUCER/GAGE

MANUFACTUE	RER	
PART NUMBE		
DESCRIPTION		
QUALIFICAT	rion status	
PROPELLANT	r/fLUID	
PRESSURE,		
	MIN	
	BURST	
MASS		
DIMENSIONS	S	
MATERIAL_		
PORT, SIZE	E & TYPE	
VOLIAGE,	INPUT	
WATTS		
SIGNAL		
ELECTRICAL	L CONNECTION	
WATER TAYA		
MOUNTING_		
ODEDATING	TEMPERATURE RANGE	
OPERATING	TEMPERATURE RANGE	
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VIBRATION,	CIME	
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SHOCK	ION	
BROCK		
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RELIABILI'		
COST		
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RELIEF VALVE

MANUFACTURER
PART NUMBER
DESCRIPTION
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, RELIEF
RESET
RATED FLOWLEAKAGE, INTERNAL
LEAKAGE, INTERNAL_
MASS
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL_
SEAI/SEAL
PORTS, SIZE & TYPE
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE

PRESSURE REGULATOR

MANUFACTUR	ER
PART NUMBE	
DESCRIPTION	
QUALIFICAT	ION STATUS
PROPELLANT	/FLUID
PRESSURE,	RANGE, INLET
	REGULATED
•	OUTLET-LOCKUP
	PROOF, INLET
•	PROOF, OUTLET
	BURST, INLET
	BURST, OUTLET
	DROP
RATED FLOW	
LEAKAGE, II	NTERNAL-MAX INLET PRESS
E	XTERNAL-MAX INLET PRESS
MASS	
DIMENSIONS	
MATERIAL,	
;	SEAT/SEAL
-	
	SPRING
PORTS, SIZ	E & TYPE, INLET
	OUTLET
INTEGRAL R	ELIEF
INTEGRAL F	ILTER
MOUNTING	
	TEMPERATURE RANGE
VIBRATION,	
	SINE
ACCELERATION NO.	ON
SHOCK	
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SHELI	
RELIABILITY	
LEAD TIME_	
COST	
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HEATER/HEAT EXCHANGER

MANUFACTURE	R
PART NUMBER	
DESCRIPTION	
OUALIFICATIO	ON STATUS

PROPELLANT/	
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PRESSURE, OF	PERATING
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RATED FLOW	JRST
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	EMPERATURE RANGE
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LIFE, SERVI	CE
CYCLE	
SHELF_	
RELIABILITY	
LEAD TIME	
COST	
REMARKS	
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LINE/THRUSTER VALVE

MANUFACTURER
PART NUMBER
DESCRIPTION
QUALIFICATION STATUS
QUALITICATION STATES
PROPERTY AND VELLIER
PROPELLANT/FLUID
PRESSURE, OPERATING
PROOF
BURST
DROP
RATED FLOW
TENUNCE INTERNAL
LEAKAGE, INTERNAL
EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL_
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
**A
VOLTAGE, OPERATING
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
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VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
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DATA SOURCE

GAS GENERATOR

MANUFACTURER
PART NUMBER
DESCRIPTION
QUALIFICATION STATUS
PROPELLANT/FLUID
PROPELLANT/FLUID
DDECCIDE ODEDATING
PRESSURE, OPERATING CHAMBER
77.07
BURST
RATED FLOW
TOTAL THROUGHPUT
TOTAL IMPULSE MASS
12.00
DIMENSIONS
MATERIAL, BODY
CATALYST/CORE
PORTS, SIZE & TYPE
VOLTAGE
WATTS
ELECTRICAL CONNECTION
DUTY CYCLE
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
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TEMPERATURE TRANSDUCER

IANUFACTURER
PART NUMBER
PESCRIPTION
UALIFICATION STATUS
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ROPELLANT/FLUID
MOLONGO MONDO MINE NAV
NDICATED TEMPERATURE, MAX
MIN_
RESSURE, OPERATING
PROOF
BURST
ASS
ASSIMENSIONS
ATERIAL
ORT, SIZE & TYPE
OLTAGE INPUT
OLTAGE, INPUT
TONAT
TECHDICAI COMMECTION
CLECTRICAL CONNECTION
OUNTING
PERATING TEMPERATURE RANGE_
PERATING TEMPERATURE RANGE
PERATING TEMPERATURE RANGE IBRATION, RANDOM SINE CCELERATION HOCK
PERATING TEMPERATURE RANGE IBRATION, RANDOM SINE CCELERATION HOCK
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK IFE, SERVICE CYCLE SHELF ELIABILITY
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK IFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK IFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
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PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
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PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST
PERATING TEMPERATURE RANGE TIBRATION, RANDOM SINE CCELERATION HOCK SIFE, SERVICE CYCLE SHELF ELIABILITY EAD TIME OST

MANUFACTURER Aeroquip Corporation
MANUFACTURER Aeroquip Corporation PART NUMBER (SERIES) 3900 series (dash number = tube o.d. in
1/16 in increments!
DESCRIPTION Positive valve, quick disconnect
CONFIGURATIONS
QUALIFICATION STATUS_ PROPELLANT/FLUID_Liquid
DODELLAND GLIED Limid
PROPELIANT/FEOTD_EIQUIG
PRESSURE, OPERATING 1000 psi
PROOF 1500 psi
BURST 2500 psi
PROOF 1500 psi BURST 2500 psi MASS 0.15 lbm for 3900-4
TUBE SIZE(S), O.D. 1/4, 3/8, 1/2, 5/8, 3/4, 1 in.
DESCRIPTION OF THE COOR ASSESSMENT OF THE COO
DIMENSIONS For 3900-4, coupled length 2.95 in.
MATERIAL BODY Al allow CREC
MATERIAL, BODY Al alloy, CRES
SEAL_
TUBE-FITTING ATTACHMENT
OPERATING TEMPERATURE RANGE65 to 160 °F
VIBRATION, RANDOM_
OINT
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ball and race lock
DAMA COUDCE Approving make land 1000
DATA SOURCE Aeroquip catalog - 1985

MANUFACTURER Cajon Company
PART NUMBER (SERIES) VCO series
DECCRIPTION Throaded locking but connection Oring foce coal
DESCRIPTION Threaded locking nut connection, O-ring face seal
CONFIGURATIONS Union, T, elbow, reducer, accessory adapters,
bullshead union
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OPERATING 2400 to 14,400 psig (for CRES) (16,500 to
99,200 kPa)
PROOF
BURST
MASS
TUBE SIZE(S), O.D. 1/8 to 1 in. st1 sizes
WINTS TO TONG
PIMENSIONS
MATERIAL, BODY 316 CRES (steel and brass also available); SEAL Viton, Buna-N, TFE
SEALViton, Buna-N, TFE
THE TIMETIC ACCUSENCE Wells, though male for least and
TUBE-FITTING ATTACHMENT weld; thread - male, female; taper, O-ring sealed
U-11114 Sealed
OPERATING TEMPERATURE RANGE To 450 °F for Viton and TFE (232 °C),
to 250 °F for Buna-N (121 °C)
VIBRATION, RANDOM_
SINEACCELERATION
SHOCK
I THE GENILOE
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Some fittings compatible with Swagelok, Nupro, or Whitey
components
DATA SOURCE Cajon product data sheet - 1986
DATA SURING C. CAROR DECOURCE CATA STOOT - 1986

MANUFACTUI	RER Cajon Company
PART NUMBI	ER (SERIES) VCR series
DESCRIPTION	ON Threaded locking nut connection, gasket sealed
CONTEXCITERY	TIONS Union, reducer union, T, cross, elbow, accessory
adapters	S CONTRACTOR OF THE CONTRACTOR
QUALIFICA'	TION STATUS
PROPELLAN'	T/FLUID
PRESSURE,	OPERATING 2300 to 16,400 psig (15,800 to 112,000 kPa)
	PROOF
	BURST
MACS	
TUBE SIZE	(S), O.D. 1/8 to 1 in. std sizes
DIMENSION	S
MATERIAL	BODY 316 CRES
PATERIAL,	SEAL Silver-plated CRES and Ni, Ni, Cu, TFE, Al
TUBE-FITT	ING ATTACHMENT Weld; thread - male, female
OPERATING	TEMPERATURE RANGE To 1000 °F for CRES, Ni, Cu (537 °C);
to 450	°F for TFE (232 °C); to 650 °F for Al (343 °C)
VIBRATION	, RANDOM_
	SING
ACCELERAT	TON
SHOCK	
LIFE, SER	
CYC	
SHE	LF
KELIABILI	TY
LEAD TIME	
	Filtered gasket available, blind gaskets available; some
	s adapt to Swagelok, Nupro, or Whitey components
11001119	b ddabe eo onddoron, nabro, or mireo, componento
D3.003	OD Onder was dust date about 1000
DATA SOUR	CE Cajon product data sheet - 1986

MANUFACTURER Deutsch Metal Components
PART NUMBER (SERIES) D9855, D10255, DNR 9855 series "Permaswage"
DESCRIPTION Swage-on tee
CONFIGURATIONS
QUALIFICATION STATUSPROPELLANT/FLUID
PRESSURE, OPERATING 3000 psi (for D), 4000 psi (for DNR)
PROOF
PROOF BURST
MASS 0.031 lbm CRES, 0.011 lbm Al, 0.018 lbm Ti for 1/4 in.
TUBE SIZE(S), O.D. 3/16 to 1 1/2 in. std sizes
DIMENSIONS 2.10 by 1.25 by 0.39 in. for 1/4 in.
MAMERIAI DODY CREC Al Ti
MATERIAL, BODY_ CRES, Al, Ti SEAL_
TUBE-FITTING ATTACHMENT Swage-on
OPERATING TEMPERATURE RANGE To 275 °F
VIBRATION, RANDOM
SINE_ACCELERATION_
SHOCK
TIPE CERUICE
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Special tooling required
DATA SOURCE Deutsch catalog - 1985

MANUFACTURER <u>Deutsch Metal Components</u> PART NUMBER (SERIES) <u>D9856, D10256, DNR 9856 series "Permaswage"</u>
DESCRIPTION Swage-on 90° elbow fitting
CONFIGURATIONS
QUALIFICATION STATUSPROPELLANT/FLUID
PRESSURF, OPERATING 3000 psi (for D), 4000 psi (for DNR)
PROOF BURST
MASS 0.025 lbm CRES, 0.009 lbm Al, 0.014 lbm Ti for 1/4 in.
TUBE SIZE(S), O.D. 3/16 to 1 1/2 in. std sizes
DIMENSIONS 1.25 by 1.25 by 0.39 in. for 1/4 in.
MATERIAL, BODY CRES, Ti, Al SEAL Silicone
TUBE-FITTING ATTACHMENT Swage-on
OPERATING TEMPERATURE RANGE To 275 °F
VIBRATION, RANDOM
OIND
ACCELERATION_SHOCK_
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIMECOST
REMARKS Special tooling required
DATA SOURCE Deutsch catalog - 1985

MANUFACTURER Deutsch Metal Components
PART NUMBER (SERIES) D10036, DNR 10036 series "Permaswage"
DESCRIPTION Swage-on union
CONFICURATIONS
CONFIGURATIONS
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OPERATING 3000 psi (for D) 4000 psi (for DNR)
DE OF
PF OF BURST
MASS 0.013 lbm CRES, 0.005 lbm A1, 0.007 lbm Ti for 1/4 in.
TUBE SIZE(S), O.D. 3/16 to 1 1/2 in.
DIMENSIONS 1.540 by 0.338 in. diam for 1/4 in.
MATERIAL, BODY Ti, CRES, or Al
SEAL Silicone
TUBE-FITTING ATTACHMENT Swage-on
OPERATING TEMPERATURE RANGE To 275 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Special tooling required
DATA SOURCE Deutsch catalog - 1985

MANUFACTUI	RER Deutsch Metal Components
PART NUMBI	CR (SERIES) D10045, DNR 10045 series "Permaswage"
DESCRIPTION	N Swage-on reducer union
COMPTGURA	TIONS
	TIONS
QUALIFICA'	PION STATUS
PROPELLAN'	r/FLUID
PRESSURE,	OPERATING 3000 psi (for D), 4000 psi (for DNR)
	PROOF_
MACC	BUR51
MASS	
TUBE SIZE combina	(S), O.D. 3/16 to 1 1/2 in. various tube size
DIMENSION	3 1.640 by 0.338 in. diam for 1/4 to 3/16 in.
MATERIAL,	BODY CRES, Ti, Al SEAL Silicone
TUBE-FITT	ING ATTACHMENT Swage
OPERATING	TEMPERATURE RANGE TO 275 °F
VIBBATION	RANDOM
TDICALLON	, RANDOMSINE
ACCELERAT	LON
SHOCK	
LIFE, SER	
CYC	
SHE RELIABILI	
LEAD TIME	
COST	
REMARKS	Special tooling required
DATA SOUR	CE Deutsch catalog - 1985

MANUFACTURER Resistoflex Company
PART NUMBER (SERIES) R44XXX, R45XXX series "Dynatube"
DESCRIPTION Screw-together coupling
CONTETCUTDATIONS TO THE TOTAL CONTENTS OF THE
CONFIGURATIONS T, union, elbow, cross, reducer, etc.
QUALIFICATION STATUS Gemini, Apollo, space shuttle
PROPELLANT/FLUID
PRESSURE, OPERATING 3000 to 10,000 psi
PROOFBURST
BURST
MASS_
TUBE SIZE(S), O.D. 3/16 to 1 1/2 in.
1000 010D(0), 0.0. <u>0,10 co 1 1,2 1</u> R.
DIMENSIONS
MATERIAL, BODY Ti, CRES, Inconel SEAL Same (metal to metal)
SEAL Same (metal to metal)
TUBE-FITTING ATTACHMENT Internal swage, weld, braze; external
swage for TFE hose
OPERATING TEMPERATURE RANGE To 600 °F (1200 °F for Inconel)
VIBRATION, RANDOM_
OINE
WCCEPERATION
SHOCK
LIFE, SERVICE
CYCLE
9.1942
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Resistoflex Catalog DY-48 - 1985

MANUFACTU	RERSnap-tite ER (SERIES)_ Series 28
PART NUMB	ER (SERIES) Series 28
DESCRIPTION	ON Quick-disconnect coupling
CONF I GURA	TIONS
PROPELLAN	TION STATUST/FLUID
PRESSURE,	OPERATING 1000 psi (600 psi for 1 1/4 and 1 1/2 in.)
	PROOF
MASS	BURST 2500 psi (1500 psi for 1 1/4 and 1 1/2 in.)
	(S), O.D. 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2 in.
DIMENSION	S
	BODY 316 CRES, Al alloy SEAL Nitrile, Viton, EPR
	ING ATTACHMENT MS 33614, 15, 49, 56, 57, SAE, pipe
OPERATING	TEMPERATURE RANGE
VIBRATION	, RANDOM_
	OIND_
SHOCK	ION
LIFE, SER CYC SHE	T.F
	TY
DEAD TIME	
חזתא כחום	CF Snan-Tite product data sheet - 1986

MANUFACTURER Wiggins Division of Transamerica Delaval PART NUMBER (SERIES) Series 20 "Min-O-Matic"
DESCRIPTION Quick disconnect
CONFIGURATIONS
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OPERATING
PROOF
BURST 13,000 psi
MASS 0.064 1bm
TUBE SIZE(S), O.D. 1/4 in. (1/8 and 3/8 in. available)
DIMENSIONS
MATERIAL, BODY Al alloy
SEAL Viton A (other options)
TUBE-FITTING ATTACHMENT Lock ring, spring load
OPERATING TEMPERATURE RANGE -20 to 400 °F
VIBRATION, RANDOM
O THE
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COSTREMARKS Self-sealing, MS 33656,7 ends
REMARKS Self-Sealing, Ms 33636, / ends
DATA SOURCE Widging catalog - 1985

MANUFACTURER Wiggins Division of Transamerica Delaval
PART NUMBER (SERIES) 3600 series [3608 -4D, -6D, -8D, -10D (A1);
3618 -4 to -10 (CRES)]
DESCRIPTION Full connector (hard tube to hard tube) flexible
COMETCHRATIONS
CONFIGURATIONS
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OPERATING
PROOF
BURST To 3000 psig
MASS 0.03 to 0.056 lbm (A1); 0.106 to 0.163 lbm (CRES)
TUBE SIZE(S), O.D. 1/4, 3/8, 1/2, 5/8 in.
DIMENSIONS 1.731 by 0.721 in. diam to 1.952 by 1.157 in. diam
MATFRIAL, BODY Al or CRES
SEAL O-ring (cust mer provided) ARP568-10, -110, -112,
-114
TUBE-FITTING ATTACHMENT Threaded sleeves
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
ITEE CEDUICE
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Requires tube end treatment
DATA SOURCE Wiggins catalog - 1985
DUTU DOONOT MENNETIN ORCHEDN TADA

MANUFACTUR PART NUMBE	ER Wiggins Division of Transamerica Delaval (SERIES) 6000 series
	N Quick disconnect
CONFIGURAT	PIONS
QUALIFICAT PROPELLANT	TION STATUS
PRESSURE,	OPERATING
	PROOF
mass	BURST 13,500 psi (1/4 ir.), 4000 psi (2 in.)
TURE SIZE	S), O.D. 1/4 to 2 in. std sizes
DIMENSIONS	
MATERIAL,	BODY CRES, A1 SEAL
TUBE-FITTI	NG ATTACHMENT Dog latch
OPERATING	TEMPERATURE RANGE65 to 275 °F
VIBRATION,	RANDOM
ACCELERAT I	SINE
	G 12 times
CYCI SHEI RELIABILIT LEAD TIME_ COST_	JF !Y
REMARKS S	Self-sealing or break-away available, MS 33656,7 ends
DATA SOURC	CE Wiggins catalog - 1985

MINUFACTURER Wiggins Division of Transamerica Delaval
PART NUMBER (SERIES) 6300 series [63051-4A to -104A (A1) and
63151-4 to 104 (CRES)]
DESCRIPTION Full connector (less ferrule) flexible
CONFIGURATIONS
QUATIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OPERATING
DROOF
PROOF BURST To 3000 psi
MASS 0.041 lbm for -10A, 0.118 lbm for -10 (5/8)
TUBE SIZE(S), O.D. 1/4- to 6-1/2-in. std sizes
DIMENSIONS 1.225 by 1.282 diam for -10A/-10
MATERIAL, BODY Al or CRES
SEAL O-ring and ARP568-110 to -439
TUBE-FITTING ATTACHMENT Threaded sleeves
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
2 I NE
ACCELERATION
SHOCK
TIPE CEDUTOR
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIME
COST
REMARKS Tube ends require swaged-on ferrule (part numbers 63052
and 63152)
dia 00102/
DATA SOURCE Wiggins catalog - 1985

TANK/ACCUMULATOR

MANUFACTURER Brunswick Defense Division
PART NUMBER BLD 999010 DESCRIPTION Filament-wound over liner
DESCRIPTION Filament-wound over liner
QUALIFICATION STATUS Space shuttle OMS
PROPELLANT/FLUID He
VOLUME 30,033 in.3
PRESSURE, OPERATING 4875 psig
PRESSURE, OFERMITING 4075 PSIG
PROOF 6473 psig
BURST /313 psig
MASS 277.5 1bm
DIMENSIONS 38.28 in. i.d.
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin
PORT(S), SIZE & TYPE
MOUNTING
MOUNTING EXPULSION METHOD
EXPONSION FIETHOD
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINEACCELERATION
ACCELERATION
SHOCK
SHOCK
LIFE, SERVICE
CICLE 1000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
146 2 134 (0
DAMA COUNCE Description Description
DATA SOURCE _Brunswick Defense product data sheet - 1985

TANK/ACCUMULATOR

MANUFACTURER Brunswick Defense Division
PART NUMBER BLD 999020
DESCRIPTION Filament-wound shell over liner
QUALIFICATION STATUS Space shuttle MPS
DDADUT AND ATTAC
PROPELLANT/FLUID He
VOLUME 8181 in.3
PRESSURE, OPERATING 4500 psig
PROOF 6150 psig
BURST 6750 psig
MASS 76.0 lbm
DIMENSIONS 24.92 in. i.d. by 0.558 in. wall
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin
DODM/C) CTZE C MYDE
PORT(S), SIZE & TYPE MOUNTING
EXPULSION METHOD_
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
GIND
ACCELERATION
SHOCK
I TEE GENTLOE
LIFE, SERVICE
CYCLE 1000 SHELF
RELIABILITY LEAD TIME
LEAD TIME COST
REMARKS
DATA SOURCE Brunswick Defense product data sheet - 1985
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MANUFACTURER Brunswick Defense Division
PART NUMBER BLD 999030
DESCRIPTION Filament-wound shell over liner
QUALIFICATION STATUS Space shuttle MPS auxiliary
PROPELLANT/FLUID He
VOLUME 3008 in.3
PRESSURE, OPERATING 4500 psig
PROOF 5800 psig
BURST 6750 psig
MASS 28.1 lbm
DIMENSIONS 17.91 in. i.d. by 0.404 in. wall
21. WING 2010 4777 4101 A77 0100 841 1144
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin
THILITING ONE TO LE LINCE, MOVICE ES UNE DIE OSA LOUIS
PORT(S), SIZE & TYPE
MOUNTING
TRADITY OF TOAT RESIDEROD
EXPULSION METHOD
OPERATING TEMPERATURE RANGE
OPERATING TEMPERATURE NAMED
VIRPATION PANDOM
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
GIOCK
LIFE, SERVICE
المقالية المقالية المقيمات والمقيمات والمقالية
CYCLE 1000
SHELF
RELIABILITY
LEAD TIMECOST
REMARKS
REMARNS
DATA SOURCE Brunswick Defense product data sheet - 1985

MANUFACTURER Brunswick Defense Division
PART NUMBER BLD 999040
DESCRIPTION Filament-wound shell over liner
QUALIFICATION STATUS Space shuttle RCS
PROPELLANT/FLUID He
VOLUME 3008 in.3
PRESSURE, OPERATING 4000 psig
PROOF 5270 psig
BURST 6000 psiq
MASS 26.3 1bm
DIMENSIONS 17.91 in. i.d. by 0.351 in. wall
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin
PORT(S), SIZE & TYPE
MOUNTING
EXPULSION METHOD
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 1000
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Brunswick Defense product data sheet - 1985

PART NUMBER BLD 999050 DESCRIPTION Filament-wound shell over liner QUALIFICATION STATUS Space shuttle ARPCS PROPELLANT/FLUID N2 VOLUME 8181 in.3 PRESSURE, OPERATING 3300 psiq PROOF 4135 psiq BURST 4950 psiq MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall	MANUFACTURER Brunswick Defense Division
QUALIFICATION STATUS Space shuttle ARPCS PROPELLANT/FLUID N2 VOLUME 8181 in.3 PRESSURE, OPERATING 3300 psiq	PART NUMBER BLD 999050
QUALIFICATION STATUS Space shuttle ARPCS PROPELLANT/FLUID N2 VOLUME 8181 in.3 PRESSURE, OPERATING 3300 psiq	DESCRIPTION Filament-wound shell over liner
PROPELLANT/FLUID N2 VOLUME 8181 in.3 PRESSURE, OPERATING 3300 psig PROOF 4135 psig BURST 4950 psig MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID N2 VOLUME 8181 in.3 PRESSURE, OPERATING 3300 psiq	
VOLUME 8181 in. 3 PRESSURE, OPERATING 3300 psiq PROOF 4135 psiq BURST 4950 psiq MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	PROPELLANT/FLUID No
PRESSURE, OPERATING 3300 psiq PROOF 4135 psiq BURST 4950 psig MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
PRESSURE, OPERATING 3300 psiq PROOF 4135 psiq BURST 4950 psig MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
PRESSURE, OPERATING 3300 psiq PROOF 4135 psiq BURST 4950 psig MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	VOLUME 8181 in 3
PROOF 4135 psig BURST 4950 psig MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	PRESSURE OPERATING 3300 psid
MASS 56.4 lbm DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	PPOOF 4135 psid
MASS 56.4 IDM DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	BIDGT 4950 peig
DIMENSIONS 25 in. i.d. by 0.41 in. wall MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	MACC 56 / 1hm
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	DIMENOTONIC OF in i d bra 0 Al in coll
MATERIAL 6A1-4V Ti liner; Kevlar 49 and LRF-092 resin PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	DIMENSIONS 25 III. I.G. Dy U.41 III. Wall
PORT(S), SIZE & TYPE MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	MAMERIAL CAL AV Ti liner, Verlag AO and IRE 002 regin
MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
MOUNTING EXPULSION METHOD OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	DODE/O) OTEN C EVDE
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OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	EXPULSION METHOD
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	OPERATING TEMPERATURE RANGE
ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
ACCELERATION SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	VIBRATION, RANDOM
SHOCK LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	SINE
LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	ACCEDERATION
LIFE, SERVICE CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	SHOCK
CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
CYCLE 1000 SHELF RELIABILITY LEAD TIME COST REMARKS	
LEAD TIME COST REMARKS	CYCLE 1000
LEAD TIME COST REMARKS	SHELF
COST REMARKS	RELIABILITY
REMARKS	LEAD TIME
REMARKS	COS1
	REMARKS
DATA SOURCE Brunswick Defense product data sheet - 1985	
DATA SOURCE Brunswick Defense product data sheet - 1985	
DATA SOURCE Brunswick Defense product data sheet - 1985	
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	Describe product data sites 1700

MANUFACTURER Brunswick Defense Division
PART NUMBER BLD 999060 DESCRIPTION Filament-wound shell over liner OUALLEICATION STATUS Space shuttle ARPCS
DESCRIPTION Filament-wound shell over liner
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID 02
VOLUME 8181 in.3
PRESSURE, OPERATING 3300 psig
PROOF 4225 DS10
BURST 4950 psig
MASS 66.6 lbm
DIMENSIONS 25 in. i.d. by 0.388 wall
MATERIAL Inconel 718 liner; Kevlar 49 and LRF-092 resin
PORT(S), SIZE & TYPE
MOUNTING
EXPULSION METHOD_
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE 1000
QUETL
MINITADIUI I I
DEAD TIME
COST
REMARKS
DATA SOURCE Brunswick Defense product data sheet - 1985

MANUFACTURER Fansteel, Inc.
DADT NIMBED 942-D-03
DESCRIPTION Spherical
QUALIFICATION STATUS
PROPELLANT/FLUID Liquid
2.
VOLUME 13,478 in. ³ (0.2209 m ³)
PRESSURE, OPERATING 700 psig (482 N/cm ²)
PROOF 1,100 psig (758.4 N/cm ²)
BURST 1,465 psig (1010 N/cm ²)
MASS 71.0 lbm (32.2 kg)
DIMENSIONS
MAMEDIAI 17 7DU CDEC
MATERIAL 17-7PH CRES
PORT(S), SIZF & TYPE
MOTATO TATO
EXPULSION METHOD
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Garrett Corp, AiResearch
PART NUMBER 851240
DESCRIPTION Spherical
QUALIFICATION STATUS
PROPELLANT/FLUID Gas
VOLUME_ 34,560 in.3 (0.56643 m ³)
VOLUME 34,560 in.3 (0.56643 m ³) PRESSURE, OPERATING 320 psig (220 N/cm ²)
PROOF
MASS 160 lbm (72 kg) DIMENSIONS 43.3 in. o.d. (109 cm)
MATERIAL 5A1-2.5Sn Ti
PORT(S), SIZE & TYPE MOUNTING
EXPULSION METHOD_
EXPOLISION FILTHOD
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
OINE
ACCEDERATION
SHOCK
LIFE, SERVICE
C. Y C. 1 a Pt.
SHELF
RELIABILITY LEAD TIME 10 to 12 months in 1974
COCH
REMARKS
DITT COURSE WITH OR 140444 . 1 WITH CO. CO. 140444 . 1 WITH CO. 140444 . 1
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Garrett Corp, AiResearch
PART NUMBER Grumman P/N LSC-270-821
DESCRIPTION Spherical, pressurant
QUALIFICATION STATUS Apollo LM descent stage
PROPELLANT/FLUID Liquid, supercritical He
VOLUME 10,200 in. ³ (0.167 m ³)
PRESSURE, OPERATING 1,500 psi (1068 N/cm ²)
PROOF 2274 psi (1567 N/cm ²)
BURST 3,420 psi design (2358 N/cm ²) MASS 102 lbm (46 kg)
DIMENSIONS 26.9 in. i.d. by 0.147 in. wall (683 by 0.373 cm)
21.11.10.20.10
MATERIAL 5A1-2.5Sn Ti (ELI)
PORT(S), SIZE & TYPE
MOUNTINGEXPULSION METHODVapor
EXPORSION METHOD ASPOL
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
Cupt c
RELIABILITY LEAD TIME
LEAD TIME COST
REMARKS Two integral, independent pressure transducers
tellade 140 11100glal, 11100pollocite probbate cranbadocib
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Martin Marietta Corporation
PART NUMBER 80801B36220-049
DESCRIPTION Cylinder with hemispherical ends
QUALIFICATION STATUS Titan III C
PROPELLANT/FLUID Liquid N2H4
VOLUME 14,750 in. ³ (0.24175 m ³)
PRESSURE, OPERATING 400 psig (275 N/cm ²)
PROOF 600 psig (413 N/cm ²)
BURST 760 psiq (524 N/cm²)
MASS 52 1bm (23 kg)
DIMENSIONS 33.24 in. by 28.24 in. diam (844.2 by 717.2 cm)
MATERIAL 6A1-4V Ti
PORT(S), SIZE & TYPE
MOUNTING Four tapped holes in bosses
EXPULSION METHOD Ethylene propylene diaphragm
OPERATING TEMPERATURE RANGE
As 214.12.11.0 191.11.21.11.01.0
VIRPATION RANDOM
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
TIDE CERTICE
LIFE, SERVICE CYCLE 300
SHELF_
RELIABILITY
LEAD TIME
COST \$50,000 U.S. in 1974
REMARKS
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Martin Marietta Corporation
PART NUMBER 88-4000500
PART NUMBER 88-4000500 DESCRIPTION Cylinder with hemispherical ends
QUALIFICATION STATUS Saturn V
PROPELLANT/FLUID GHe
VOLUME 53,910 in. ³ (0.8835 m ³)
PRESSURE, OPERATING 3000 psi (2068 N/cm ²)
PROOF 5000 psi (3.447 N/cm ²)
PROOF 5000 psi (3,447 N/cm ²) BURST 6660 psi (4591 N/cm ²)
MASS 1144 1bm (518.9 kg)
DIMENSIONS 211.88 in. by 20.90 in. o.d. by 0.90 in. wall (5381.7
hsz 52 09 hsz 2 29 cm)
MAGEDIAL AL 2014 TC
PORT(S), SIZE & TYPE
MOINTING Boses
MOUNTING Bosses EXPULSION METHOD
EXPULSION METHOD_
OPERATING TEMPERATURE RANGE -180 to 160 °F (118 to 71 °C)
OPERATING TEMPERATURE NAMES -100 CO 100 F (110 CO 71 C)
VIDDATION DANDOM
VIBRATION, RANDOM
SIND
ACCELERATION
SHOCK
* The Cents Coll
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME No spares
COST
REMARKS
TATE OF THE TATE OF 140000 3 1707 OF 140001 (5 -)
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Pressure Systems, Inc.
PART NUMBER 80111-1
DESCRIPTION Spherical
QUALIFICATION STATUS Beaver Submarine (Rockwell)
PROPELLANT/FLUID Gas
VOLUME 35,300 in. ³ (0.57856 m ³)
PRESSURE, OPERATING 890 psig (613 N/cm ²)
PROOF 1335 psig (920 N/cm ²) BURST 1780 psig (1227 N/cm ²)
MASS 255 lbm (115 kg) DIMENSIONS 40.74 in. o.d. by 0.282 in. wall (103.4 by 0.716 cm)
DIFEENSIONS 40.74 III. O.G. by 0.282 III. Wall (103.4 by 0.716 Cm)
MATERIAL 6A1-4V Ti
PORT(S), SIZE & TYPE One, polar
MOTING TAIC
EXPULSION METHOD
OPERATING TEMPERATURE RANGE
MIDDATION DANIOM
VIBRATION, RANDOM_
SINE ACCELERATION SUPERIOR SUP
SHOCK_
LIFE, SERVICE
CICLE
Official
RELIABILITY
LEAD TIME COST
REMARKS
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)
DATA DOUNCE MADA CK-142000 did MADA CK-142031 (181. 3)

MANUFACTURER Pressure Systems, Inc.
PART NUMBER 80140-1
DESCRIPTION Spherical
QUALIFICATION STATUS Qualified and flown in 1969 (JPL)
The same of the sa
PROPELLANT/FLUID Liquid - MMH, NTO
3 (0 0000 3)
VOLUME 13,442 in.3 (0.22031 m ³)
PRESSURE, OPERATING 300 psig (206 N/cm ²) PROOF 600 psig (413 N/cm ²) BURST 750 psig (517 N/cm ²) MASS 22.5 lbm (1.02 kg)
PROOF 600 psig (413 N/cm²)
BURST /50 psig (517 N/cm²)
MASS 22.5 lbm (1.02 kg) DIMENSIONS 29.5 in. i.d. by 0.031 in. wall (749 by 0.078 cm)
DIMENSIONS 29.5 in. i.d. by 0.031 in. wall (749 by 0.078 cm)
100 MID TAT
MATERIAL_CAl-4V Ti
PODECO GIZE C MIZE This moley
PORT(S), SIZE & TYPE Two, polar MOUNTING Four equatorial lugs
EXPULSION METHOD Teflon bladder FED-TFE
EXPULSION METHOD Terion Diadder FED-IFE
OPEDAMING MEMBERAMINE DANCE
OPERATING TEMPERATURE RANGE
VIDDAMION DANDOM
VIBRATION, RANDOM_
SINE
ACCELERATION_
SHOCK
ייי פיייייי
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIME 34 weeks in 1974
COST
REMARKS
105 MACO
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)

MANUFACTURER Rockwell International
PART NUMBER 240-48202
DESCRIPTION Spherical
PART NUMBER 240-48202 DESCRIPTION Spherical QUALIFICATION STATUS X-15
PROPELLANT/FLUID Liquid H202
VOLUME 17,300 in. ³ (0.283 m ³)
PRESSURE, OPERATING 600 psi (413 N/cm ²)
PROOF 900 psi (620 N/cm ²) BURST 975 psi (672 N/cm ²)
BURST 975 psi (672 N/cm ²)
MASS 64 1bm (29 kg)
DIMENSIONS
MATERIAL 350 CRES
THILITAL 330 CKLD
PORT(S), SIZE & TYPE
MOUNTING
EXPULSION METHOD
OPEDANTIA NEWDEDANIDE DANGE
OFERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE NASA CR-142666 and NASA CR-142531 (ref. 5)
DATA SOURCE MASA CE-142000 did MASA CE-142001 (161. 0)

MANUFACTURER Structural Composite Industries
PART NUMBER Model 156
DESCRIPTION Filament-wound gas cylinder
DESCRIPTION Filement-wound gas cylinder QUALIFICATION STATUS MMU (Martin Marietta)
PROPELLANT/FLUID GN2
VOLUME 1631 in.3 (0.0267 m ²) PRESSURE OPERATING 3600 psid
PRESSURE, OPERATING 3600 psiq PROOF BURST
PROOF
10.00 of 5 11 (10.5 h-1)
MASS 27.5 lbm (12.5 kg) DIMENSIONS 10 in. diam by 31 in. (25.4 by 78.7 cm)
DIMENSIONS 10 1n. diam by 31 1n. (25.4 by /8.7 cm)
MATERIAL 6061-T6 liner; Kevlar 49 and epoxy wrap
PORT(S), SIZE & TYPE
MOUNTING
EXPULSION METHOD
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
OTME
ACCEDERATION
SHOCK
LIFE, SERVICE
SUEPL
BEAD TIME
COS1
REMARKS SCI manufactures filament-wound pressure vessels from 55
to 363,000 in.3 in spheres, near-spheres, and cylinders
DAMA COUNCE CCI product data choose 1005. ACME proceedings
DATA SOURCE SCI product data sheets - 1985; ASME proceedings (ref. 6)
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MANUFACTURER Structural Composite Industries
PART NUMBER Model 200
DESCRIPTION Filament-wound composite
QUALIFICATION STATUS
PROPELLANT/FLUID
VOLUME_ 11,000 in.3 (0.18 m ³)
PRESSURE, OPERATING 3000 psig
PROOF 5000 psig
BURST
MASS 300 lbm (136 kg)
DIMENSIONS 50 in. by 21.4 in. o.d. (127 by 54.4 cm)
MATERIAL
PORT(S), SIZE & TYPE
PORT(S), SIZE & TYPE
MOUNTING TO A METERIOD
EXPULSION METHOD
ADEDATING TEMPEDATURE DANCE
OPERATING TEMPERATURE RANGE
TIT DDATTON DANDOM
VIBRATION, RANDOM
SINE ACCELEDATION
ACCEDERATION
SHOCK_
LIFE, SERVICE
CYCLE
CYCLE SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE SAMPE symposium (ref. 7)

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-4-00-51-27
DESCRIPTION Manual toggle valve
QUALIFICATION STATUS Space shuttle ARPCS
DRODULT AVIII (III III D. O.
PROPELLANT/FLUID_O2
PRESSURE, OPERATING 1250 psig
PRESSURE, OPERATING 1230 psig
PROOF 1875 psig BURST 2500 psig
RATED FLOW 50 1bm/hr at 300 psi, 10 psid
LEAKAGE, INTERNAL 5.0 SCCM
EXTERNAL 5.0 SCCM
MASS 0.49 1bm
DIMENCIONC
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INIEGRAL FILIER
MOUNTING
OPERATING TEMPERATURE RANGE
WIDDAWION DAVIDON
VIBRATION, RANDOM
GINE
ACCEPTION TOTAL
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-4-00-51-45
DESCRIPTION Manual toggle valve
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_O2, N2
PRESSURE, OPERATING 0 to 295 psig
PROOF 443 psig
BURST 590 psig
RATED FLOW 7.0 lbm/hr at 100 psi, 1.0 psid max.
LEAKAGE, INTERNAL 2.0 SCCM
EXTERNAL 0.2 SCCM
MASS 0.530 1bm
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM
SINE SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 71665
DESCRIPTION Manual fill and drain QUALIFICATION STATUS USAF program
QUALIFICATION STATUS USAF PLOGRAM
PROPELLANT/FLUID_GN2_
PRESSURE, OPERATING 3015 psia (2078 N/cm ²)
PROOF 4515 DS1a (3113 N/Cm ²)
BURST 6015 psia (4147 N/cm ²)
RATED FLOW
LEAKAGE, INTERNAL 5 SCCH GN ₂ at 3615 psia (2492 N/cm ²)
EXTERNAL 0.0002 SCCS GN ₂ at 3615 psia (2492 N/cm ²)
MASS 1.0 lbm (0.45 kg)
DIMENSIONS 4.71 in. LOA
MATERIAL, BODY CRES
SEAT/SEAL CRES
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE Brazed tube
INTEGRAL FILTER 200 µm abs
OPERATING TEMPERATURE RANGE -30 to 140 °F (-34 to 60 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE CYCLE 100
SHELF
RELIABILITY
LEAD TIME 180 days in 1974
COST 5 to 10 units - \$2000 in 1974
REMARKS May be scaled up or down as required. Compatible with
pneumatics and storable propellants.
DATA SOURCE IIIRI lists (ref. 8) and Aerospace Corporation report (ref. 9)

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 72580
DESCRIPTION Manual fill and vent
QUALIFICATION STATUS USAF P-95
DEODELL AND CELLED M. M.O. LIDMI H.O.
PROPELLANT/FLUID N2, N2O4, UDMH, H2O
PRESSURE, OPERATING 3615 psia (2492 N/cm ²)
PROCF 5415 psia (3733 N/cm ²)
PRESSURE, OPERATING 3615 psia (2492 N/Cm ²) PROCF 5415 psia (3733 N/cm ²) BURST 9015 psia (6215 N/cm ²)
RATED FLOW Equivalent to 0.5 in. (1.27 cm) orifice
LEAKAGE, INTERNAL 5 SCCH GN2 at max. pressure
EXTERNAL 0.0002 SCCS GN2
MASS 1.0 lbm (0.45 kg)
PASS 1.0 IDM (0.45 kg)
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL CRES
CONNECTIONS, GROUND SIDE MS tube fitting 0.56-18 UNF
SPACECRAFT SIDE Brazed tube
INTEGRAL FILTER 200 µm abs
MOUNTING
OPERATING TEMPERATURE RANGE -30 to 140 °F (-34 to 60 °C)
PURPORTED NO. DESTR. NO.
VIBRATION, RANDOM
SINE
ACCELERATION SHOCK
LIFE, SERVICE
CYCLE 100
SHELF
RELIABILITY
LEAD TIME 180 days in 1974
COST 5 to 10 units - \$2000 in 1974
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 72855
DESCRIPTION Manual fill and vent
QUALIFICATION STATUS USAF P-50
PROPELLANT/FLUID GN2, N2H4
PROPERTURNITY PROTECTION ON ST. IN STITE
PRESSURE, OPERATING 345 psia (237 N/cm ²)
PRESSURE, OPERATING 345 psia (237 N/cm ²) PROOF 515 psia (355 N/cm ²)
BURST
RATED FLOW Equivalent to 0.5 in. (1.27 cm) orifice (See remarks.)
LEAKAGE, INTERNAL 5 SCCH GN2
EXTERNAL 0.72 SCCH GN ₂
MASS 1.20 lbm (0.544 kg) flight half only
DIMENSIONS
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL CRES
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INTEGRAL FILTER 200 µm abs
MOUNTING
OPERATING TEMPERATURE RANGE
OF DEATING TENT DIGITORE TO EACH
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ground
Dash No. Spacecraft brazed-tube Flow fitting-tube
-1 0.375 in. (0.952 cm) 2.0 lbm/s GN ₂ 0.50-20 UNF
-3 0.750 in. (1.904 cm) 1.0 CFM H ₂ O 0.875-14 UNF
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
<u>(ref. 9)</u>

MANUFACTURER Futurecraft Corporation
PART NUMBER 200791 DESCRIPTION Solenoid, two-way, NC, fill and vent
QUALIFICATION STATUS Space shuttle OMS (Aerojet)
PROPELLANT/FLUID GN2
PRESSURE, OPERATING 0 to 1000 psig, 0 to 3000 psig reverse flow PROOF 6000 psig BURST 12,000 psig
RATED FLOW FEOD = 0.01 min (CD = 0.65)
LEAKAGE, INTERNAL_
EXTERNAL
MASS 0.38 1bm
DIMENSIONS 3.58 by 2.47 by 1.06 in.
MATERIAL, BODY 6061-T6 Al alloy
SEAT/SEAL Buna-N 90 shore, ethlylene propylene
CONNECTIONS, GROUND SIDE 0.750-16 UNJ-3B socket
SPACECRAFT SIDE Stub in pad mount INTEGRAL FILTER Inlet, sintered CRES, 6 µm nom., 18 µm abs
MOUNTING Pad; four 0.192/0.205-indiam holes at 0.750 by 1.20 in.
OPERATING TEMPERATURE RANGE 0 to 160 °F
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIMECOST
REMARKS 23 to 32 Vdc, 63.4-W solenoid
DATA SOURCE Futurecraft drawing 200791 - 1985

MANUFACTURER Futurecraft Corporation
PART NUMBER 900490-2
DESCRIPTION Fill and drain
QUALIFICATION STATUS ASAT (Hamilton Standard)
PROPELLANT/FLUID GHe, other compatible fluid
PROPERED OF CHEF COMPACIDIC FIGURE
PRESSURE, OPERATING 0 to 500 psia
PROOF 1000 psia
BURST 2000 psia
RATED FLOW
LEAKAGE, INTERNAL_
HILION INTERNAL
EXTERNAL_
MASS 0.14 1bm
DIMENGIONG 0.00 in her 0.074 in diam
DIMENSIONS 2.09 in. by 0.874 in. diam
MATERIAL, BODY 17-4PH CRES
SEAT/SEAL Metal to metal seat; ethylene propylene and
Kel-F seals CONNECTIONS, GROUND SIDE
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
OIMD
ACCEDENT TON
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Futurecraft drawing 900490 - 1985

MANUFACTURER Futurecraft Corporation
PART NUMBER 900491-1, -2
DESCRIPTIONQUALIFICATION STATUS ASAT (Hamilton Standard)
QUALIFICATION STATOS ASAT (Hamilicon Scandard)
PROPELLANT/FLUID N2H4, GN2, GHe, other compatible fluid
PRESSURE, OPERATING 0 to 500 (for -1), 8000 psia (for -2) PROOF 1000 (for -1), 16,000 psia (for -2) BURST 2000 (for -1), 32,000 psia (for -2)
RATED FLOW
LEAKAGE, INTERNAL_
EXTERNAL
MASS
DIMENSIONS 1.94/2.25 in. less tube by 1.50 in. by 1.25 in.
MATERIAL, BODY 17-4PH CRES SEAT/SEAL Metal to metal seat; ethylene propylene and Kel-F seal
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE 0.25-indiam tube
INTEGRAL FILTER MOUNTING 0.221-indiam holes, two each, 1.000 in. apart
MOONTING U.ZZI-III. Glam Holes, two each, 1.000 III. apart
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
21ME
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST_
REMARKS
DATA COURCE Enturograft drawing 000401 1005
DATA SOURCE Futurecraft drawing 900491 - 1985

PART NUMBER 255620-3, 255921-3, (255610-2 ground fitting)
DESCRIPTION Fill and drain
QUALIFICATION STATUS Viking orbiter - 1975, Mariner - 1973
PROPELLANT/F. JI) GN2, MMH, N2O4
PRESSURE, OPERATING 0 to 4015 psia (0 to 2768 N/cm ²) PROOF 6015 psia (4147 N/cm ²)
PROOF 6015 psia (4147 N/cm ²) BURST 16015 psia (11,042 N/cm ²)
RATED FLOW Liquid - 0.28 lbm/s H ₂ O at 75 psid (0.12 kg/s at
51 N/cm ² ; gas - 17 SCFM GN ₂ at 25 psid (8000 SCCS at 17 N/cm ²) LEAKAGE, INTERNAL 0.003 SCCH He
LEARAGE, INTERNAL 0.003 SCCH HE
EXTERNAL 0.005 SCCS He
MASS 0.30 1bm (0.13 kg)
D. PARTING T. CATA
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL
CONNECTIONS, GROUND SIDE SPACECRAFT SIDE
SPACECRAFT SIDE
INTEGRAL FILTER MOUNTING
HOORITHO
OPERATING TEMPERATURE RANGE 25 to 125 °F (-3.8 to 51.6 °C)
VIBRATION, RANDOM
PINE
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE 100
SHELF_
RELIABILITYLEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Hughes Aircraft Company PART NUMBER 325-7167 DESCRIPTION Inline ball fill and vent valve
PART NUMBER 325-7167
DESCRIPTION Inline ball fill and vent valve
QUALIFICATION STATUS Intelsat IV A, Westar, Anik
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 415 psia (286 N/cm ²)
PROOF 6015 psia (4147 N/cm²)
BURST 8015 psia (5526 N/cm ²)
RATED FLOW 0.0553 lbm/s at 30 psid (0.0250 kg/sec at 20 N/cm ²)
LEAKAGE, INTERNAL 0.50 SCCH
EXTERNAL_
MASS 0.27 lbm (0.12 kg) flight half only
Descripto PANA
DIMENSIONS
MARKED TAT DODY CAR AN THE
MATERIAL, BODY 6Al-4V Ti
SEAT/SEAL_
CONNECTIONS, GROUND SIDE AND818-4J (1/4 in.)
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 170 °F (-28 to 76.6 °C)
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 1200
SHELF
RELIABILITY
LEAD TIME
REMARKS
NAME OF THE PROPERTY OF THE PR
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Moog Inc.
PART NUMBER Model 50-527
DESCRIPTION Fill and drain
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID
PRESSURE, OPERATING 510 psig
PROOF 950 psig
BURST 1509 psig
RATED FLOW 0.25 lbm/min He at 4 psid
P 213 253 ATT
LEAKAGE, INTERNAL
EXTERNAL Zero liquid at 510 psig, 10-5 SCCS GHe
EXTERNAL Zero figura at 510 psig, 10 5 SCCS GHE
MACC 0 50 1bm may
MASS 0.50 1bm max.
DIMENSIONS 3.48 in. by 2.79 in. diam
MATERIAL, BODY SEAT/SEAL
SEAT/SEAL
CONNECTIONS, GROUND SIDE MS 33656-3
SPACECRAFT SIDE 1/4-in. tube
INTEGRAL FILTER
MOUNTING Three 0.196-indiam holes on 2.321-indiam BC
OPERATING TEMPERATURE RANGE -30 to 250 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 10 yr
CYCLE 100
SHELF 4 yr RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Moog drawing A77479 - 1985

MANUFACTURER Moog Inc.
PART NUMBER Model 50-528
DESCRIPTION Fill and drain
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID
PRESSURE, OPERATING 510 psig
PROOF 950 psig
BURST 1509 psig
RATED FLOW 0.25 lbm/min at 4 psid
T DAYA COL TAMBEDATAT
LEAKAGE, INTERNAL
EXTERNAL 10-5 SCCS GHe at 510 psig zero liquid
EXTERNAL 10 Sees die at 510 psig zelo liquid
MASS 0.50 1bm
PRADO 0.30 IDM
DIMENSIONS 3.58 in. by 2.79 in. diam
MATERIAL, BODY
SEAT/SEAL
CONNECTIONS, GROUND SIDE MS 33656-4
SPACECRAFT SIDE 1/4-in. tube
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -30 to 250 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
(IEE CEDUICE 10 ***
LIFE, SERVICE 10 yr CYCLE 100
SHELF 4 yr
RELIABILITY
LEAD TIME
COST
REMARKS
***** T.
DATA SOURCE Moog drawing A77481 - 1985

MANUFACTURER Moog Inc.
PART NUMBER Model 50-529
DESCRIPTION Fill, drain, and vent
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID MMH
PRESSURE, OPERATING 510 psig
PROOF 950 psig
BURST 1509 psiq
DAMED BLOW 0 20 1bm/min of 15 maid
RATED FLOW 0.30 1bm/min at 15 psid
LEAKAGE, INTERNAL
DEANAGE, INTERNAL
EXTERNAL Zero liquid at 510 psig, 10-5 SCCS GHe
Initiating Bold Highle de 510 pb19, 10 0000 one
MASS 0.50 lbm max.
DIMENSIONS 3.98 in. by 2.790 in. diam
MATERIAL, BODY
MATERIAL, BODY
CONNECTIONS, GROUND SIDE MS 33656-6
SPACECRAFT SIDE 0.375 in. o.d. tube
INTEGRAL FILTER
MOUNTING
ODERATING MUNICIPALITIES DANGE OF ACCOUNT
OPERATING TEMPERATURE RANGE30 to 250 °F
VIBRATION, RANDOM
SINE ACCELERACION
ACCELERATION SHOCK
SHOCK
LIFE, SERVICE 10 yr
CYCLE 100
SHELF 4 yr
RELIABILITY
LEAD TIME
COST
REMARKS
DATE OF THE RESERVE TO THE TOTAL TOT
DATA SOURCE Moog drawing A77483 - 1985

MANUFACTURER Moog Inc.
PART NUMBER Model 50-530
DESCRIPTION_ Fill, drain, and vent w/cover
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID N204
EKOLETPWILLEDID NSOT
PRESSURE, OPERATING 510 psig
PROOF 950 psig
BURST 1509 psig
RATED FLOW 30 1bm/min at 15 psid
LEAKAGE, INTERNAL
Duration, Intuition
EXTERNAL Zero liquid at 510 psig, 10-5 SCCS GHe
MASS 0.50 lbm max.
DIMENCIONE 2 00 in her 2 700 in diam
DIMENSIONS 3.90 in. by 2.790 in. diam
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL_
CONNECTIONS, GROUND SIDE MS 33656-8
SPACECRAFT SIDE 0.375 in. o.d. tube
INTEGRAL FILTER MOUNTING Three 0.196-indiam holes EQ SP at 2.114 in.
MOONTING INTEG V.170 III. GIAM HOTES DO DE AC Z.114 III.
OPERATING TEMPERATURE RANGE -30 to 250 °F
VIBRATION, RANDOM
O 11/17
1.00mmm 1.1.1.014
SHOCK
LIFE, SERVICE 10 yr
CYCLE 100
SHELF 4 yr
RELIABILITY
LEAD TIME COST
REMARKS
DATA SOURCE Moog drawing A77485 - 1985
Duty poorer wood drawing willon - 1907

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1146, 1176
DESCRIPTION Inline manifold mounted, manual operation
QUALIFICATION STATUS ATS, Surveyor, SAM-D, Apollo, etc.
PROPELLANT/FLUID
PRESSURE, OPERATING 4015 psia (2768 N/cm ²) for Al alloy
PROOF 6015 psia (4147 N/cm ²) for Al alloy BURST 8015 psia (5526 N/cm ²) for Al alloy
RATED FLOW
LEAKAGE, INTERNAL 0.03 SCCH He at 3015 psia (2078 N/cm ²)
EXTERNAL
MASS 0.019 lbm (0.0086 kg) for Al alloy, 0.057 lbm (0.025 kg) for
CRES
DIMENSIONS
MATERIAL, BODY 6061T6 Al alloy or 303 CRES
SEAT/SEAL
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
SINE_ACCELERATION_SHOCK
SHOCK
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA COIDCE IITEI light (nof e)
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1176-16; 1832-1
DESCRIPTION Manual, single-seat axial flow, fill and vent
QUALIFICATION STATUS Transit Improvement (TIP-II)
PROPELLANT/FLUID_ N2H4
PRESSURE, OPERATING 535 psia (368 N/cm ²) PROOF 1100 psia (758.4 N/cm ²)
PROOF 1100 psia (758.4 N/cm ²)
BURST_ 2100 psia (1447 N/cm ²)
RATED FLOW
LEAKAGE, INTERNAL 3x10-3 SCCH He at OP pressure
EXTERNAL 1x10 ⁻⁶ SCCS He at OP pressure
MASS 0.1 lbm (0.04 kg) flight half only
DIMENSIONS
DI: IIINO I ONO
MATERIAL, BODY CRES
SEAT/SEAL Steel on steel
CONDUCTIONS CHOIRD CIRT F/16 OA /6-2 1176\ 2/0 O4 /6-2 1000\
CONNECTIONS, GROUND SIDE 5/16-24 (for 1176), 3/8-24 (for 1832) SPACECRAFT SIDE 1/2-20 (for 1176), 9/16-18 (for 1832)
INTEGRAL FILTER NO
MOUNTING
OPERATING TEMPERATURE RANGE 41 to 122 °F (5 to 50 °C)
MIDDATION DANDOM
VIBRATION, RANDOMSINE
SINE ACCELERATION SHOCK
SHOCK
LIFE, SERVICE
CYCLE 50
SHELFRELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1811-4
DESCRIPTION Inline fitting mounted, manually operated
QUALIFICATION STATUS N. Rocket
DRODELL AND ACTUAL CALL NO.
PROPELLANT/FLUID GN2, He
PRESSURE, OPERATING 0 to 3015 psia (0 to 2078 N/cm ²)
PROOF 6015 psia (4147 N/cm ²)
BURST 12015 psia (8284 N/cm ²)
RATED FLOW
LEAKAGE, INTERNAL 3.9x10-6 SCCH He at max. OP pressure
_
EXTERNAL
MASS_ 0.07 lbm (0.03 kg)
DIMENSIONS
MATERIAL, BODY 6061-T6 Al alloy
SEAT/SEAT.
CONTROLLONG COOLED CIDE
SPACECRAFT SIDE
TMTFCDAI FILTED
INTEGRAL FILTER
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
O Tive
ACCEMENTION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COT
REMARKS
DAMA COUNCE ITEDI licks / mof 0)
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1819 DESCRIPTION Inline bulkhead or manifold mount
QUALIFICATION STATUS COMSAT, Viking 1975, P-72, B-1, Scout, etc.
PROPELLANT/FLUID
PRESSURE, OPERATING 0 to 5015 psia (0 to 3457 N/cm ²)
PROOF 7515 psia (5181 N/cm ²)
BURST 15,015 psia (10,352 N/cm ²)
RATED FLOW
LEAKAGE, INTERNAL 0.03 SCCH He at max. OP pressure
EXTERNAL
MASS 0.057 lbm (0.025 kg)
DIMENSIONS
MATERIAL, BODY 303 CRES, AMS-5639 CRES
SEAT/SEAL_Viton "A"
CONNECTIONS, GROUND SIDE SPACECRAFT SIDE
INTEGRAL FILTER MOUNTING
MOUNTING
OPERATING TEMPERATURE RANGE -10 to 150 °F (-23 to 65.5 °C)
OPERATING TEMPERATURE RANGE -10 to 150 f (-25 to 65.5 t)
VIBRATION, RANDOM
OTME
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE 100 SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1821-1
DESCRIPTION Inline fitting mount, manually operated
QUALIFICATION STATUS N. Rocket
PROPELLANT/FLUID GN2, He
PRESSURE, OPERATING 365 psia (251 N/cm ²) PROOF 715 psia (492 N/cm ²) BURST 1415 psia (975.6 N/cm ²)
PROOF 715 psia (492 N/cm ²)
BURST 1415 psia (975.6 N/cm ²)
RATED FLOW
LEAKAGE, INTERNAL 6.5x10-8 SCCS He at 365 psia
TEARAGE, INTERNAL 0.3A10 - BCCB He at 303 psia
EXTERNAL_
MASS 0.07 lbm (0.03 kg)
DIMENSIONS
MATERIAL, BODY 304L CRES
SEAT/SEAL_
CONNECTIONS, GROUND SIDE
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
(/IND
ACCEDERATION
SHOCK
TIPE CEDVICE
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIMP.
COST
REMARKS
DAMA COUNCE TIME! light (ref 9)
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 1831
DESCRIPTION Inline, flange mounted, manual fill and vent QUALIFICATION STATUS Viking 1975, MJS, GPR, CTS, HEAO, HCMM
QUALIFICATION STATUS VIRING 1973, MOS, GER, CIS, MEAO, MCMM
PROPELLANT/FLUID GN2, He
DDEGGIDE ODDDAEING SES maio (200 N/m-2)
PRESSURE, OPERATING 555 psia (382 N/cm ²) PROOF 1115 psia (768.7 N/cm ²)
BURST 2195 psia (1513 N/cm ²)
RATED FLOW 0.15 lbm/s H ₂ O at 20 psid (0.068 kg/s at 13 N/cm ²)
LEAKAGE, INTERNAL 1.7x10 ⁻³ SCCH He at OP pressure
EXTERNAL 1.3x10 ⁻⁷ SCCS He at 27 N/cm ² (40 psia)
MASS 0.17 lbm (0.07 kg)
DIMENSIONS
MATERIAL, BODY 304L CRES
Ο Β'Α'Ρ ΖΟΒ'Δ1.
CONTROLLONG CROUNTY CIDE
SPACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE 41 to 123 °F (5 to 50.5 °C)
VIBRATION, RANDOM
21/16
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 550
SHELF
RELIABILITY
LEAD TIME
COSTREMARKS
REMARKS
DAME COUNCE TIME lists (not 0) and house a comment is
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report (ref. 9)

MANUFACTURER TRW
PART NUMBER 409708
DESCRIPTION Manually operated inline flow
DESCRIPTION Manually operated inline flow QUALIFICATION STATUS Atmosphere Explorer 1973
PROPELLANT/FLUID N2H4
4-7
PRESSURE, OPERATING 600 psia (413 N/cm ²)
PROOF 900 psia (620 N/cm ²)
DIDOT 2400 pois (1654 N/am2)
DORSI 2400 PSIR (1034 N/Cm-)
RATED FLOW

LEAKAGE, INTERNAL 1x10-5 SCCH He at OP pressure
EXTERNAL 1x10 ⁻⁷ SCCS He at OP pressure
MASS 0.22 lbm (0.10 kg)
DIMENSIONS
DIFILINOTONO
MATERIAL, BODY CRES with Al ₂ O ₃ ceramic ball
CEAT/CEAL Coramic on steel
SEAT/SEAD_CELUMIC ON SCEET
CONNECTIONS, GROUND SIDE TRW P/N G404306
SPACECRAFT SIDE 1/4-in. braze joint (Aeroquip)
THREADY ELLED
INTEGRAL FILTER
MOUNTING
OTEDANTIA NEWDEDANIDE DANCE
OPERATING TEMPERATURE RANGE
TIT DO A TO
VIBRATION, RANDOM
O T 14 T

SHOCK
A
LIFE, SERVICE
CYCLE 100
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE ITTRI lists (ref. 8)

SERVICE VALVE

MANUFACTURER Wright Components, Inc.
PART NUMBER 12183
DESCRIPTION Manual fill and drain, two-way QUALIFICATION STATUS MSD, classified
QUALIFICATION STATUS MSD, CIRSSILIEU
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 0 to 350 psia (0 to 241 N/cm ²)
PROOF 615 psia (424 N/cm ²)
BURST 1215 psia (837 N/cm ²)
RATED FLOW 52 SCCS He (0.156 in. diam; $C_D = 0.65$)
LEAKAGE, INTERNAL 1.5x10 ⁻⁶ SCCS He at 79.2 N/cm ²
EXTERNAL 1.5x10 ⁻⁶ SCCS at 79.2 N/cm ²
MASS 0.35 lbm (0.15 kg)
DIMENSIONS
DIMENSIONS
MATERIAL, BODY 304 CRES
SEAT/SEAL 304 CRES
CONNECTIONS, GROUND SIDE Four-bolt flange
SPACECRAFT SIDE Special flange
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 160 °F (-28 to 71 °C)
VIRRATION RANDOM
VIBRATION, RANDOM
ACCELERATION
SHOCK
LIFE, SERVICE CYCLE 250
SHELF
RELIABILITY
LEAD TIME Special order; 18 to 24 weeks in 1974 (ARO)
COST
REMARKS
DATA SOURCE Wright catalog - 1984, IITRI lists (ref. 8), and
Aerospace Corporation report (ref. 9)

SERVICE VALVE

MANUFACTURER Wright Components, Inc.
PART NUMBER 12319
DESCRIPTION Fill and drain, manual
QUALIFICATION STATUS Shuttle-launched dispenser (See Remarks.)
PROPELLANT/FLUID He, N2, 1PA, Freon, N2H4, N2O4, H2O
Depositive Openative 215 maio
PRESSURE, OPERATING 315 psia
PROOFBURST
DUROI
RATED FLOW 100 ppm H ₂ O (seat diam, 0.625 in.)
LEAKAGE, INTERNAL 1x10-6 SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 1.5 lbm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL TFE
CONNECTIONS, GROUND SIDE
STACECRAFT SIDE
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION RANDOM
VIBRATION, RANDOMSINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 100 minimum
SHELF RELIABILITY
LEAD TIME
COST
REMARKS Not known to have flown
DATA SOURCE Wright catalog - 1984
Trials Andrews timestand Andrews 1 A

MANUFACTURER Aircraft Porous Media
PART NUMBER AC-A370-6 DESCRIPTION Fiberglass-mat element gas filter
DESCRIPTION FIDERGIASS-mat element das filter
QUALIFICATION STATUS ELMS
PROPELLANT/FLUID
RATING, ABSOLUTE 0.3 μm
PRESSURE, OPERATING 3500 psia (2415 N/cm ²)
PROOF
BURST
DIFFERENTIAL
RATED FLOW 0.001 1bm/s N2 at 2 psid (0.0005 kg/s)
TUDO!!QUD!T
THROUGHPUT
DEMOCO, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY_
ELEMENT
PORTS, INLET
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE -80 to 150 °F
VIBRATION, RANDOM 22.39 rms
SINE
ACCELERATION 15g
SHOCK 30g
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COSTREMARKS
REPARAS
DATE CONTROL Assessed Company (see 1995)
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Aircraft Porous Media
PART NUMBER AC-6875-4
DESCRIPTION Sintered wire-mesh element gas filter
QUALIFICATION STATUS ELMS PROPELLANT/FLUID RATING, ABSOLUTE 5 µm
PRESSURE, OPERATING 180 psia (124 N/cm ²) PROOF BURST
DIFFERENTIAL
RATED FLOW 0.0003 1bm/s He (0.00014 kg/s)
THROUGHPUT LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
PORTS, INLET
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION SHOCK
LIFE, SERVICE
CYCLE
SHELF PEI LABIL LTV
RELIABILITY LEAD TIME
LEAD TIMECOST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Aircraft Porous Media
PART NUMBER AC-6875-853
DESCRIPTION Fiberglass element, inline, 0.5-in. (1.27-cm) gas
filter
QUALIFICATION STATUS Apollo LEM
PROPELLANT/FLUID He
RATING, ABSOLUTE 5 μm
PRESSURE, OPERATING 4015 psia (2768 N/cm ²)
PROOF 5335 psia (3678 N/cm ²)
BURST 8015 psia (5526 N/cm ²)
DIFFERENTIAL
RATED FLOW 380 SCFM (1.7x10 ⁵ SCCS)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.38 lbm (0.17 kg)
DIMENSIONS
MATERIAL, BODY
ELEMENT Fiberglass
EDECTION 1 1 SPECALOS
PORTS, INLET Inline braze
OUTLET Inline braze
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST 5 to 9 units - \$600 in 1974
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Aircraft Porous Media
PART NUMBER AC-6875-855
DESCRIPTION Inline-braze gas filter
QUALIFICATION ETATUS Apollo LEM
PROPELLANT/FLUID GHe
RATING, ABSOLUTE 15 μm
PRESSURE, OPERATING 1765 psia (1216 N/cm ²)
PRESSURE, OPERATING 1765 psia (1216 N/cm²) PROOF 2345 psia (1616 N/cm²)
BURST 3515 psia (2423 N/cm ²)
DIFFERENTIAL
RATED FLOW 380 SCFM (1.7x10 ⁵ SCCS)
RATED FEON SOU BETT (1:7XIV BECS)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.43 lbm (0.19 kg)
DIMENSIONS
DIFFINOTONO
MATERIAL, BODY
ELEMENT Fiberglass mat
PORTS, INLET Inline braze
OUTLET Inline braze
MOUNTING
OPERATING TEMPERATURE RANGE
OF DIGITING THAT DIGITORS TO HOD
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST 5 to 9 units - \$1450 in 1974 REMARKS
NEPHANO
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER F7008, F7009
DESCRIPTION
QUALIFICATION STATUS Apollo (Martin Marietta)
PROPELLANT/FLUID
RATING, ABSOLUTE
PRESSURE, OPERATING 6000 psi
PROOF
BURST
DIFFERENTIAL
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
DIMENSIONS
MATERIAL, BODY 304 CRES, TFE
ELEMENT
PORTS, INLET MS 33656-6
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
DINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seals Controls list (ref. 10)

MANUFACTURER Facet Enterprises, Inc.
PART NUMBER 1736760-05
DESCRIPTION Replaceable element, bypass
QUALIFICATION STATUS Lear Fan 2100 Aircraft
PROPELLANT/FLUID Liquid (jet fuel)
RATING, ABSOLUTE 20 µm nom.
PRESSURE, OPERATING 80 psi
PROOFBURST
DIFFERENTIAL 0.6 psid clean, 1.5 psid switch, 2.25 psid
bypass bypass
DAMED BLOW 2 CDM
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 1.5 lbm
DIMENSIONS 8.38 by 3.50 in.
MATERIAL, BODY
ELEMENT Cellulose fiber and phenolic resin; CRES or
Inconel may be available
PORTS, INLET MS 33649-10
OUMI TITL Company in late
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 160 °F
OFERATING TERREDATORE RANGE 05 CO 100 1
VIRRATION CANDOM
VIBRATION, CANDOM
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Integral 1.5 psid switch
DATA SOURCE Facet product data catalog - 1986

MANUFACTURER Facet Enterprises, Inc.
PART NUMBER 1740001
DESCRIPTION Replaceable element, integral differential pressure
indicator
QUALIFICATION STATUS Variation used on Nomad aircraft
PROPELLANT/FLUID Liquid (jet fuel, gasoline)
RATING, ABSOLUTE 3 to 250 µm nom.
PRESSURE, OPERATING 100 psi PROOF
BURST
DIFFERENTIAL Indicator - 1 to 15 psid, bypass - 1.5 to
20 psid
RATED FLOW TO 10 GPM
RATED LEON TO 10 OFFI
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 1.5 lbm
DIMENSIONS 7.75 by 4.00 in.
DIFEROTORS 7.75 By 4.00 III.
MATERIAL, BODY
MATERIAL, BODYELEMENT
PORTS, INLET MS 33656E10 fitting in MS 33649-12 port
OUTLET Same as inlet
MOUNTING Three-bolt holes
OPERATING TEMPERATURE RANGE65 to 300 °F
WIDDAWION DANDON
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
rine dentitoe
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA COURCE Front product data catalog 1000
DATA SOURCE Facet product data catalog - 1986

MANUFACTURER Norman Equipment Company
PART NUMBER 4200T series
DESCRIPTION_Bidirectional, straight inline
QUALIFICATION STATUS
PROPELLANT/FLUID Any fluid compatible w/304 CRES
RATING, ABSOLUTE 2x to 200 µm
PRESSURE, OPERATING 0 to 6000 psi; 0 to 3000 psi
PROOF 9000 psiq
BURST 24,000 psig
DIFFERENTIAL
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS 1-in. hex by 1.6-in.2 element (for 0 to 6000 psi);
1.375-in. hex by 3.3-in.2 element, 1.75-in. hex by 6.6-in.2
element (for 0 to 3000 psi) MATERIAL, BODY 304 CRES
MATERIAL, BODY 304 CRES ELEMENT 304 CRES
EDDITING 304 CKD0
PORTS, INLET 0.25 to 0.5-in. pipe, 37° SAE, MS 33656, or AND-10050
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -320 to 800 °F
WIRDATION DANDOM
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Cleanable, pleated, woven element
DATA SOURCE Norman Equipment product data sheet - 1986
The state of the s

MANUFACTURER Norman Equipment Company
PART NUMBER 4300 series
DESCRIPTION Straight inline
QUALIFICATION STATUS
PROPELLANT/FLUID Liquid (MIL-H-5606) and gas (air)
RATING, ABSOLUTE 2x to 200 µm
PRESSURE, OPERATING 0 to 3000 psi
PROOF 4500 psig
BURST 12,000 psig
DIFFERENTIAL
RATED FLOW 1.2 to 29 GPM liquid/15 to 1750 SCFM gas
THROUGHPUT
LEAKAGE, EXTERNAL
DIMENSIONS
DIFEROTORO
MATERIAL, BODY 303 CRES or 2024T351
ELEMENT 304 CRES
PORTS, INLET Pipe, 37° SAE, MS 33656, or AND10050
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE_
SHELF_
RELIABILITY LEAD TIME
COST
REMARKS Cleanable, woven element
DATA SOURCE Norman Equipment product data sheet - 1986

MANUFACTURER Pall Pneumatic Products Corporation
PART NUMBER PCS 13501 G24
DESCRIPTION Single cartridge, particulate or coalescing
QUALIFICATION STATUS
PROPELLANT/FLUID Pneumatic
RATING, ABSOLUTE
PRESSURE, OPERATING 150 psig
PRESSURE, OPERATING 150 psig PROOF
BURST
DIFFERENTIAL 0.3 psid clean
DATED FLOW 250 CCEM
THROUGHPUT
LEAKAGE, EXTERNAL
MACC 40 lbm
DIMENSIONS 24 by 7.8 by 6 in.
21.11.10.10.10.10.10.10.10.10.10.10.10.10
MATERIAL, BODY 304 CRES
ELEMENT
PORTS, INLET 1.5-in. NPT
OUTLET 1.5-in. NPT, 0.25-in. NPT drain
MOUNTING
OPERATING TEMPERATURE RANGE To 200 or 425 °F
VIBRATION, RANDOM_
SINE ACCELERATION
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Two-piece housing, removable element; FCS 350AF or HT
cartridge P/N
DATA SOURCE Pall product data sheet - 1986

MANUFACTURER Pall Pneumatic Products Corporation
PART NUMBER PCS 33501 G24
DESCRIPTION Single cartridge, particulate or coalescing
OND THE TOTAL AND THE
QUALIFICATION STATUS
PROPELLANT/FLUID Pneumatic
RATING, ABSOLUTE
PREGATE OPERATING 200 main
PRESSURE, OPERATING 300 psig
PROOFBURST
DIFFERENTIAL 0.3 psid clean
DIFFERENTIAL U.3 PSIG CLEAN
RATED FLOW 810 SCFM
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 30 1bm
DIMENSIONS 24 by 7.8 by 6 in.
Ditting tone 21 by 7.0 by 0 111.
MATERIAL, BODY 304 CRES
ELEMENT
PORTS, INLET 1.5-in. NPT
OUTLET 1.5-in. NPT, 0.25-in. NPT drain
MOUNTING
OPERATING TEMPERATURE RANGE To 200 or 425 °F
VIBRATION, RANDOM_
SINE
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Two-piece housing, removable element
num common n.11l. late al at a com
DATA SOURCE Pall product data sheet - 1986

MANUFACTURER Purolator Technologies
PART NUMBER
DESCRIPTION Pressure, return, case drain elements
QUALIFICATION STATUS Space shuttle (Rockwell)
PROPELLANT/FLUID Hydraulic (MIL-H-83282)
RATING, ABSOLUTE 5 µm for pressure, 15 µm for case drain/return
PRESSURE, OPERATING
PROOF
RITDOM
DIFFERENTIAL
RATED FLOW 65 GPM for pressure and return, 5 GPM for case drain
RATED FLOW OF GFM TOT DIESSULE did lettli, 5 GFM TOT Case didin
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 22 1bm
DIMENSIONS 12.25 by 6.5 by 10.5 in.
MATERIAL, BODY
ELEMENT
PORTS, INLET_
הנותו בת
OUTLET_
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
ORELE DELIANTIANI
RELIABILITY
LEAD TIME
COST
REMARKS Check valves and shutoff valves integral
DATA SOURCE Purolator product data sheet - 1985
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MANUFACTURER Vacco Industries
PART NUMBER E-81916-4-15 DESCRIPTION Cartridge element, liquid-propellant filter
QUALIFICATION STATUS Titan III PROPELLANT/FLUID N2H4 RATING, ABSOLUTE 15 µm
PRESSURE, OPERATING 400 psia (275 N/cm ²) PROOF 668 psia (460 N/cm ²) BURST 888 psia (612 N/cm ²) DIFFERENTIAL
RATED FLOW 0.222 lbm/s N ₂ H ₄ at 4 psid and 75 °F (0.100 kg/s at 2 N/cm ² and 23 °C) THROUGHPUT I_EAKAGE, EXTERNAL
MASS 0.75 lbm (0.34 kg) DIMENSIONS
MATERIAL, BODY 303 CRES ELEMENT 303 CRES, etched disc
PORTS, INLET Special cartridge OUTLET Same as inlet MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM SINE
ACCELERATIONSHOCK
LIFE, SERVICE CYCLE SHELF
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report (ref. 9)

MANUFACTURER Vacco Industries
PART NUMBER F1D10064-01 DESCRIPTION 0.25-in. inline liquid filter assembly, etched-disc
element
QUALIFICATION STATUS COMSAT, Intelsat IV, SDS PROFELLANT/FLUID N ₂ H ₄
RATING, ABSOLUTE 10 µm
PRESSURE, OPERATING 315 psia (217 N/cm ²)
PROOF 465 psia (320 N/cm ²) BURST 1215 psia (837.7 N/cm ²)
BURST 1215 psia (837.7 N/cm²) DIFFERENTIAL
RATED FLOW 0.015 lbm/s N ₂ H ₄ (0.007 kg/s)
THROUGHPUT
LEAKAGE, EXTERNAL_
MASS 0.3 lbm (0.1 kg)
DIMENSIONS
MATERIAL, BODY Ti
ELEMENT
PORTS, INLET 0.25-in. o.d. by 0.020-in. wall tube
Office Compactible
OUTLET Same as inlet MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
CUPT D
SHELF RELIABILITY
SHELF RELIABILITY LEAD TIME 8 to 10 weeks in 1974
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST
RELIABILITY LEAD TIME 8 to 10 weeks in 1974
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST REMARKS
RELIABILITY LEAD TIME 8 to 10 weeks in 1974 COST

MANUFACTURER Vacco Industries
PART NUMBER F1D10093 DESCRIPTION Etched-disc element, liquid filter
DESCRIPTION_ Etched-disc element, liquid filter
QUAL TICATION STATUS Mariner, Viking
PROFLANT/FLUID_N2H4
RATING, ABSOLUTE 35 µm
PRESSURE, OPERATING 300 psia (206 N/cm ²) PROOF
BURST 1200 psia (828 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.44 lbm/s at 3 psid and 70 °F (0.19 kg/s at 2 N/cm ² and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 1.6 lbm (0.75 kg)
DIMENSIONS 6.3 in. length (16 cm)
MATERIAL, BODY 304 CRES
ELEMENT 304 CRES
PORTS, INLET 0.5-in. tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CVCIF
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAMA COUNCE Assessed Councidation south (see C)
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Vacco Industries
PART NUMBER F1D10106-01
DESCRIPTION Inline liquid-propellant filter assembly
QUALIFICATION STATUS ERTS
PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 25 µm
PRESSURT, OPERATING 600 psia (413 N/cm ²)
PROOF 990 psia (682 N/cm ²)
borsi iszo psia (910 M/Cm ²)
DIFFERENTIAL_
RATED FLOW
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 304 CRES
ELEMENT_
PORTS, INLET
OUTLET
MOUNTING
ODEDAMING MEMBEDAMIDE DAMCE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY LEAD TIME 8 to 10 weeks in 1974
COST
DEWADIZC
REMARKS
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Vacco Industries
PART NUMBER F1D10106-02
DESCRIPTION Inline liquid-propellant filter assembly
QUALIFICATION STATUS ERB
PROPELLANT/FLUID NoHa
RATING, ABSOLUTE 25 µm
PRESSURE, OPERATING 880 psia (606 N/cm ²)
PROOF 1320 psia (910 N/cm ²)
BURST 2640 psia (1870 N/cm ²)
η τ επερεκά τα τ
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 304 CRES
ELEMENT
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DODGE THE FO
PORTS INLET
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OUTLET
MOUNTING
ODED A MILLO MELIODE DALICE
OPERATING TEMPERATURE RANGE
127 NN 1 DI PAIT NA 14 N
VIBRATION, TANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8)
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MANUFACTURER Vacco Industries
PART NUMBER F1D10132-01 DESCRIPTION 0.25-in. inline filter assembly, etched-disc element
DESCRIPTION U.25-III. IIIIIII TITLE ASSEMBLY, etched-disc etement
QUALIFICATION STATUS Apollo
PROPELLANT/FLUID GN2
RATING, ABSOLUTE 40 μm
PRESSURE, OPERATING 1000 psia (689.4 N/cm2)
PROOF 2040 psia (1406 N/cm ²) BURST 4080 psia (2813 N/cm ²)
BURST 4080 psia (2813 N/cm ²)
DIFFERENTIAL
RATED FLOW 423 SCFM GN2 at 15 psid and 75 °F (1.99x105 SCCS at
10 N/cm ² and 23 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS_0.3 lbm (0.1 kg)
DIMENSIONS
MATERIAL BODY 3041, CRES
MATERIAL, BODY 304L CRES ELEMENT 304L CRES
PORTS, INLET 0.25-in. o.d. by 0.035-in. wall tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -275 to 170 °F (-170 to 76.6 °C)
VIRPATION PANDOM
VIBRATION, RANDOMSINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COSTREMARKS
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Vacco Industries
PART NUMBER F1D10151-01
DESCRIPTION 0.25-in. inline liquid-propellant filter assembly
QUALIFICATION STATUS CTS
PROPELLANT/FLUID Anhydrous N2H4
RATING, ABSOLUTE 10 μm
PRESSURE, OPERATING 300 psia (206 N/cm ²)
PROOF 450 psia (310 N/cm ²)
BURST 1200 psia (827.3 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.05 lbm/s for N2H4 at 10 psid and 75 °F (0.02 kg/s at
6.8 N/cm ² and 23 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.50 lbm (0.22 kg)
DIMENSIONS
MATERIAL, BODY 304L CRES
ELEMENT 304L CRES, etched disc
PORTS, INLET 0.25-in. by 0.020-in. wall tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Vacco Industries
PART NUMBER F1D10178-01
DESCRIPTION 0.375-in. inline gas filter assembly
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID He
RATING, ABSOLUTE 12 μm
PRESSURE, OPERATING 4000 psia (2757 N/cm ²)
PROOF 6000 psia (4136 N/cm ²) BURST 14900 psia (10273 N/cm ²)
BURST 14900 psia (102/3 N/Cm²)
DIFFERENTIAL
DAMED BLOW 16 COPY No at 5 maid and 75 OF (7500 CCCC at 2 N/cm2
RATED FLOW 16 SCFM He at 5 psid and 75 °F (7500 SCCS at 3 N/cm ² and 23 °C)
MITTO ATTACK DITM
THROUGHPUT_ LEAKAGE, EXTERNAL
DIFFUNOD, DISTERSAND
MASS_ 1.0 lbm (0.45 kg)
DIMENSIONS
MATERIAL, BODY 304L CRES
ELEMENT 304L CRES
PORTS, INLET 0.375-in. o.d. by 0.050-in. wall tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE 30 to 90 °F (-1 to 32 °C)
CIT D D A TO OLI D A LIDOLE
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COCID
REMARKS
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Vacco Industries
PART NUMBER F1D10180-01
DESCRIPTION 0.25 in. inline gas filter assembly
QUALIFICATION STATUS OSO-1
PROPELLANT/FLUID GN2
RATING, ABSOLUTE 10 µm
PRESSURE, OPERATING 4000 psia (2757 N/cm ²)
PROOF 6000 psia (4136 N/cm ²)
BURST 14,000 psia (9652 N/cm ²)
DIFFERENTIAL
RATED FLOW 7.0 SCFM GN2 at 1 psid and 75 °F (3300 SCCS at
0.6 N/cm ² and 23 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.30 lbm (0.13 kg)
DIMENSIONS
MATERIAL, BODY Ti
ELEMENT CO4L CRES, etched disc
PORTS, INLET 0.25-in. tube (0.63 cm) by 0.018-in. wall
ATTIT TITI
OUTLET CONTROL OF CONT
MOUNTING Bracket; two holes, 0.217 in. diam (0.55 cm)
OPERATING TEMPERATURE RANGE -40 to 140 °F (-40 to 60 °C)
OPERATING TEMPERATURE RANGE -40 to 140 F (-40 to 60 t)
VIBRATION, RANDOM 18.6g rms
SINE 12g
ACCELERATION 18q
SHOCK
DITOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
REMARKS
4 table 40 40 147 11.J
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Vacco Industries
PART NULBER F1D10182-01 and -02
DESCRIPTION 0.1875-in. inline liquid filter assembly
blboxililox 0.1070 iii. iiiiiiio liquid lilcol dbbombly
QUALIFICATION STATUS CTS
PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 10 µm
RATING, ADDOUGLE TO min
PRESSURE, OPERATING 396 psia (273 N/cm ²)
PROOF 594 psia (409 N/cm ²)
BURST 1584 psia (1092 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.025 lbm/s N2H4 at 5 psid and 75 °F (0.011 kg/s at
3 N/cm ² and 23 °C)
THROUGHPUT
LEAKAGE, EXTERNAL 1x10 ⁻⁶ SCCS He at 315 psia (217 N/cm ²)
MASS 0.23 lbm (0.10 kg)
DIMENSIONS
MATERIAL, BODY Ti
ELEMENT 316L CRES (F.H.)
PORTS, INLET
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE 40 to 160 °F (4.4 to 71 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
REMARKS -01 dynamic unit, -02 production unit
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Vacco Industries
PART NUMBER SL-81019
DESCRIPTION Inline gas filter assembly
QUALIFICATION STATUS Viking lunar orbiter
PROPELLANT/FLUID GN2
RATING, ABSOLUTE 12 µm
PRESSURE, OPERATING 3820 psia (2633 N/cm ²)
PROOF 5730 psia (3950 N/cm²)
BURST 7640 psia (5267 N/cm ²)
DIFFERENTIAL
RATED FLOW 10 SCFM GN2 at 15 psid and 75 °F (4700 SCCS at 10 N/cm2
and 23 °C)
THROUGHPUT
LEAKAGE, EXTERNAL_
MASS 0.033 lbm (0.014 kg)
DIMENSIONS
MATERIAL, BODY 304L CRES
ELEMENT 304L CRES
PORTS, INLET 0.25-in. o.d. by 0.035-in. wall tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 160 °F (-53 to 71 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)
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MANUFACTURER Vacco Industries
PART NUMBER SL-81500
DESCRIPTION Inline gas filter assembly
QUALIFICATION STATUS Apollo
PROPELLANT/FLUID GHe
RATING, ABSOLUTE 12 µm
PRESSURE, OPERATING 1000 psia (689.4 N/cm ²)
PROOF 3500 psia (2413 N/cm²)
BURST 7000 psia (4826 N/cm ²)
DIFFERENTIAL
RATED FLOW 40 SCFM He at 10 psid and 75 °F (1.9x104 SCCS at
6.8 N/cm ² and 23 °C)
LEAKAGE, EXTERNAL
MASS 0.22 lbm (0.1 kg)
DIMENICIONS
DIMENSIONS
MATERIAL BODY 304L CRES
ELEMENT 304L CRES, etched disc
EDEFIENT 30411 CRES, econed disc
PORTS, INLET 0.25-in. o.d. by 0.035-in. wall tube
PORTS, INDET U.23-III. U.G. Dy U.033-III. Wall Cabe
OUTLET Same as inlet
MOUNTING Same as inject
MOONITING
OPERATING TEMPERATURE RANGE -275 to 160 °F (-170 to 71 °C)
OPERATING TEMPERATURE RANGE -273 CO 100 T (-170 CO 71 C)
TAT TO DA MIT ON TO ANTO OM
VIBRATION, RANDOM_
SINE ACCELERATION
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Vacco Industries
PART NUMBER S2-8846
DESCRIPTION Inline gas filter assembly
QUALIFICATION STATUS LEM
PROPELLANT/FLUID_GHe
RATING, ABSOLUTE 15 µm
PRESSURE, OPERATING 4000 psia (2757 N/cm ²)
PROOF 5320 psia (3668 N/cm ²)
BURST 8000 psia (5515 N/Cm ²)
DIFFERENTIAL
DATED BLOW 100 COME No at 0 0 maid and CE OF 10 0mg at
RATED FLOW 130 SCFM He at 2.8 psid and 65 °F (6.3x104 SCCS at
1.9 N/cm ² and 18 °C) THROUGHPUT
LEAKAGE, EXTERNAL
MASS_ 0.43 lbm (0.19 kg)
DIMENSIONS
DITHING TONG
MATERIAL, BODY 304L CRES
ELEMENT 304 CRES, etched disc
PORTS, INLET 0.375-in. o.d. by 0.040-in. wall tube
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 160 °F (-53 to 71 °C)
VIBRATION, RANDOM
SINE
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIME 8 to 10 weeks in 1974
COST
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref a)

MANUFACTURER Western Filter Corporation
PART NUMBER Series 6030
DESCRIPTION Inline, gas or liquid
QUALIFICATION STATUS
PROPELLANT/FLUID Compatible w/300 series CRES
RATING, ABSOLUTE 10 to 75 μm
PRESSURE, OPERATING 6000 psi
PROOF 9000 psi
BURST
DIFFERENTIAL 75 or 300 psid
RATED FLOW To 8 GPM liquid, to 200 SCFM gas
201222 2 2011 2 2 0 0211 2 2 0 0 2 0 0 0 0
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 304 CRES
ELEMENT
EPEMEN I
PORTS, INLET Optional for 0.25 to 0.5-in. line
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE Cryogenic to 800 °F
VIBRATION, RANDOM_
OIND
ACCELERATION SHOCK
BHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Western Filter product data sheet - 1982

MANUFACTURER Western Filter Corporation
PART NUMBER XX-1-16510-XX (series 16510) DESCRIPTION Inline filter, twilled Dutch double-weave element
QUALIFICATION STATUS
RATING, ABSOLUTE 10 to 85 μm
PRESSURE, OPERATING 4500 psi PROOF
DIFFERENTIAL
RATED FLOW 4 GPM
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS 3.5 in. by 1.25 or 1.375 in. diam (excluding ports)
MATERIAL, BODY 300 series CRES, TFE seal ELEMENT 304 CRES
PORTS, INLET_MS 33565-4, -6, -8, or -12
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -425 to 500 °F
VIBRATION, RANDOM_
SINE
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE
SHELFRELIABILITY
LEAD TIME
COST
REMARKS Filtration rating increases w/tube and port size
DATA SOURCE Western Filter product data sheet - 1982

MANUFACTURER Wintec, Brunswick
PART NUMBER 8228-501
DESCRIPTION
QUALIFICATION STATUS Apollo
PROPELLANT/FLUID
RATING, ABSOLUTE
PRESSURE, OPERATING 150 psia (104 N/cm ²)
PROOF
BURST
DIFFERENTIAL
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
ELEMENT
PORTS, INLET
Attmt Pm
OUTLET
MOUNTING
ADEDAMING MEMOREDAMINE DANGE
OPERATING TEMPERATURE RANGE
TOTALITAN DANDOM
VIBRATION, RANDOM
SINE SINE
ACCELERATION_
SHOCK
TIEE CENTICE
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
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DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Wintec, Brunswick
PART NUMBER 11267-504
DESCRIPTION Sintered metal-fiber element gas filter
QUALIFICATION STATUS Viking PROPELLANT/FLUID RATING, ABSOLUTE 5 µm
RATING, ADSOLUTE 5 pm
PRESSURE, OPERATING 50 psia (35 N/cm ²) PROOF
BURST
DIFFERENTIAL
RATED FLOW
THROUGHPUT LEAKAGE, EXTERNAL
MASS
DIMENSIONS_
MATERIAL, BODY ELEMENT
PORTS, INLET_
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE_
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE SHELE
SHELF RELIABILITY
LEAD TIME
CODI
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Winter, Brunswick
PART NUMBER 12204-508
DESCRIPTION Woven-wire element gas filter
QUALIFICATION STATUS Apollo
PROPELLANT/FLUID He
RATING, ABSOLUTE 60 µm
PRESSURE, OPERATING 315 psia (217 N/cm ²)
PROOF 465 psia (320 N/cm ²)
BURST 1215 psia (837 N/cm ²)
ητερεργώνται.
RATED FLOW 8 SCFM He at 155 psid
RATED FLOW 8 SCIM HE at 135 paid
THROUGHPUT
TENUNCE EVTEDNAT O OOOL SCCS Ho
MASS 0.8 lbm (0.3 kg)
* * 1 Phi + A = A + A
D. TENSTONS
MATERIAL, BODY 300 series CRES
ELEMENT 300 series CRES
EDEMENT 300 Series Chio
PORTS, INLET MS 24385-4
PURIS, INDEL PIS 24303-4
OTHER AND LOSO A
OUTLET AND10050-4
MOUNTING
ODEDATING TEMPEDATIDE DANGE
OPERATING TEMPERATURE RANGE
TATE TO TAKE TAKE TO T
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
RELIABILITY LEAD TIME
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RELIABILITY LEAD TIME COST
RELIABILITY LEAD TIME COST REMARKS
RELIABILITY LEAD TIME COST

MANUFACTURER Wintec, Brunswick
PART NUMBER 14228-502
DESCRIPTION Woven-wire element gas filter
QUALIFICATION STATUS USAF classified program
FROPELLANT/FLUID GN2
RATING, ABSOLUTE 25 μm (10 μm nom.)
PRESSURE, OPERATING 5215 psia (3595 N/cm ²)
PROOF 7515 psia (5181 N/cm ²)
BURST 10,015 psia (6905 N/cm ²)
DIFFFRENTIAL 10.00 psid (6.9 N/cm ²)
RATED FLOW 20 SCFM GN ₂ at 450 psid and 70 °F (9440 SCCS GN ₂ at 310 N/cm ² and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.4 lbm (0.1 kg)
DIMENSIONS
MATERIAL, BODY 300 series CRES
ELEMENT 300 series CRES
DODDO THE WO DOCCODA
PORTS, INLET MS 33656E4
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 160 °F
OFERRITING TEMPERATURE RANGE -100 CO 100 T
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COS1
REMARKS
DATA SOURCE Winter product data sheet - 1985, IITRI lists
(ref. 8), and Aerospace Corporation report (ref. 9)

MANUFACTURER Wintec, Brunswick
PART NUMBER 14228-621-3
DESCRIPTION
QUALIFICATION STATUS Classified program
PROPELLANT/FLUID H2O, alcohol
RATING, ABSOLUTE 25 µm
RATING, ADOUDITE 25 mil
representation of the contract
FRESSURE, OPERATING 330 psia (228 N/cm ²)
PROOF
BURST
DIFFERENTIAL 0.90 psid (0.6 N/cm ²)
RATED FLOW 1.3 lbm/s (0.6 kg/s)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
ELEMENT
Elichen I
DODGG TITT TO
PORTS, INLET
OUTLET AN818-12J
MOUNTING
OPERATING TEMPERATURE RANGE65 to _ 5 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE CYCLE
SHELF_
RELIABILITY
LEAD TIME
LEAD TIME COST
LEAD TIME
LEAD TIME COST

MANUFACTURER Wintec, Brunswick
PART NUMBER 14267-602
DESCRIPTION Wire-mesh element gas filter
QUALIFICATION STATUS ERTS, NIMBUS
PROPELLANT/FLUID
RATING, ABSOLUTE 10 µm
PRESSURE, OPERATING 2000 psia (1380 N/cm ²)
PROOF
BURST
DIFFERENTIAL
DAGED TO 11 10 COME - 1 CO - 1 - 1 TO OF 15 C-103 COCC - 1 C5 M ()
RATED FLOW 12 SCFM at 50 psia and 70 °F (5.6x10 ³ SCCS at 35 N/cm ²
and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
ELEMENT 304 CRES wire mesh
DHERMI JOT CRED WITC MOSI
PORTS, INLET
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE -60 to 160 °F (-51 to 71 °C)
VIBRATION, RANDOM 20g rms
SINE 20q
ACCELERATION 30g
SHOCK
LIFE, SERVICE 5 yr
CYCLE
SHELF 3 yr
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15204-516
DESCRIPTION Woven-wire element gas filter
QUALIFICATION STATUS Apollo (qualified) PROPELLANT/FLUID GHe, NTO, Freon, other RATING AESOLUTE 74 µm (33 µm nom.)
PRESSURE, OPERATING 186 psi
PROOF 215 psi
BURST
DIFFERENTIAL
RATED FLOW 403 SCFM He at 186 psi and 60 °F (270 lbm/hr) 1.9x10 ⁵ SCCS He at 128 N/cm ² and 15 °C) THROUGHPUT LEAKAGE, EXTERNAL
MASS 1.5 lbm (0.68 kg)
DIMENSIONS
MATERIAL, BODY 300 series CRES ELEMENT 300 series CRES
PORTS, INLET
FORIS, INDEI
OUTLET 1-in. tube
MOUNTING
OPERATING TEMPERATURE RANGE 65 to 275 °F
WIRDATICM PANDOM
VIBRATICN, RANDOM
SINE ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Winter product data sheet - 1985 and IITRI lists (ref. 8)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15228-572
DESCRIPTION Woven-wire element liquid-propellant filter
QUALIFICATION STATUS Viking (qualified, not flown)
PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 35 μm
PRESSURE, OPERATING 555 psia (382 N/cm ²)
PROOF 825 psia (568 N/cm ²)
BURST 1095 psia (754 N/cm ²)
DIFFERENTIAL 1.50 psid
RATED FLOW 2.30 lbm/s H ₂ O at 315 psid and 70 °F (1.04 kg/s H ₂ O at 217 N/cm ² and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS_ 0.45 lbm (0.2 kg)
DIMENSIONS
MATERIAL, BODY 300 series CRES
ELEMENT 300 series CRES
DODGE THE TILLIAN A OF A
PORTS INLET Flange; three 0.25-in. 28 UNJF-3A studs
OUTLET Flange; four 0.187-indiam holes
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 125 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIMECOST
REMARKS
DATA SOURCE Winter product data sheet - 1985, IITRI lists
(ref. 8), and Aerospace Corporation report (ref. 9)
(101. 0)) with included one political copolic (151.))

MANUFACTURE	ER Wintec, Brunswick
PART NUMBER	R 15241-508
DESCRIPTION	V
OTT T TTT C 7 (7)	TON AMARICA 1 - 17 70
	ION STATUS Apollo, AE
PROPELLANT/	/FLUID_UDMH, GN2, GHe, deionized H2O SOLUTE 18 µm (5 µm nom.)
RAIING, ADO	OHOTE TO μαι (5 μαι ποια:)
PRESSURE. C	OPERATING 250 psia (173 N/cm ²)
	PROOF
E	BURST
I	DIFFERENTIAL 0.50 psid
RATED FLOW	
THROUGHPUT	
	KTERNAL
DEFICACE, EZ	
MASS	
DIMENSIONS	
-	
MATERIAL, I	
I	ELEMENT
DODUC THE	τη
PORIS, INLI	ET
OTITI	LET
MOUNTING	
OPERATING T	remperature range
VIBRATION,	RANDOM
A COME TO COME	SINE
ACCELERATION	ON
SHOCK	
LIFE, SERV	I C E
CVCLE	6'
SHET	F'
RELIABILITY	Y
لطلة ونقاحك المثلة المتداسات	
COST	
REMARKS	
האשא פרווהרי	E Wintec product data sheet - 1985, and Aerospace
	ion report (ref. 9)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15241-526
DESCRIPTION Woven-wire element liquid-propellant filter
OUR THEORETON CHRONIC April 10
QUALIFICATION STATUS Apollo
PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 15 µm
PRESSURE, OPERATING 196 psia (135 N/cm ²)
PROOF 390 psia (268 N/cm ²)
BURST 515 psia (355 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.240 lbm/s (0.108 kg/s)
THROUGHPUT
LEAKAGE, EXTERNAL
MASS 0.287 lbm (0.130 kg)
DIMENSIONS
MATERIAL, BODY MC-999-0058
ELEMENT 300 series CRES
PORTS, INLET 0.631-in. o.d. tube
FORTS, INDET 0.031-III. O.u. cube
OUTLET 0.379-in. o.d. tube
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SIMD
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE_
SHELF_
RELIABILITY
LEAD TIMECOST
REMARKS
DATA SOURCE ITTRI lists (ref. 8) and Aerospace Corporation report
(rof 0)

MANUFACTURER Winter, Brunswick

PART NUMBER 15241-647
DESCRIPTION Woven-wire element liquid-propellant filter
DESCRIPTION WOVEH-WITE GIGHER TIQUID-PROPERTANC TITLES
QUALIFICATION STATUS USAF P777, AE, DSCSII, DSP
DECORPTION STATUS USAF FITT, AE, DSCSII, DSF
PROPELLANT/FLUID N2H4 RATING, ABSOLUTE 15 µm
RATING, ADSOLUTE 15 HH
DDECCIDE ODEDATING (15 mgis /424 N/cm2)
PRESSURE, OPERATING 615 psia (424 N/cm ²)
PROOF 1017 psia (701 N/cm²)
BURST 1347 psia (928 N/cm ²) DIFFERENTIAL
DIFFERENTIAL
DAMED BLOW O OF 1bm/s N.U. of 1 0 moid and 70 SE (0 02 kg/s of
RATED FLOW 0.05 lbm/s N_2H_4 at 1.0 psid and 70 °F (0.02 kg/s at 0.69 N/cm ² and 21 °C)
MUDOLIGUIDI 61
THROUGHPUT
LEAKAGE, EXTERNAL 1x10 ⁷ SCCS He
167.00 0 4 1hm (0 2 hm)
MASS 0.4 lbm (0.2 kg)
DIMENSIONS
NOTED TAL DODG ON ON ON ON ORDER
MATERIAL, BODY 300 Series CRES
MATERIAL, BODY 300 series CRES ELEMENT 300 series CRES
PORTS, INLET 0.25-in. o.d. tube
OPERT FIRM CO
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE60 to 300 °F (-51 to 149 °C)
PARTON BANDON AA
VIBRATION, RANDOM 20g rms
SINE 10g
ACCELERATION 249
SHOCK 1000g
LIFE, SERVICE 7 yr
07/01 E 2 ***
CYCLE 3 yr
SHELF
SHELF
SHELF RELIABILITY LEAD TIME COST
SHELF_ RELIABILITY_ LEAD TIME_
SHELF RELIABILITY LEAD TIME COST
SHELF RELIABILITY LEAD TIME COST REMARKS

MANUFACTURER Wintec, Brunswick
PART NUMBER 15241-685 (TRW P/N EQ1-464)
DESCRIPTION Metal-mesh element liquid-propellant filter
QUALIFICATION STATUS Atmosphere Explorer (qualified)
PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 15 µm
PRESSURE, OPERATING 600 psia (413 N/cm ²)
PROOF 900 psia (620 N/cm ²) BURST 2400 psia (1544 N/cm ²)
BURST 2400 psia (1544 N/cm ²)
D.FFERENTIAL
RATED FLOW 0.02 lbm/s N2H4 at 1.0 psid and 70 °F (0.0009 kg/s at
0.68 N/cm ² and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL 1x10 SCCS He at 750 psia (517 N/cm2)
MASS 0.4 lbm (0.2 kg)
DIMENSIONS 5-in. length including tube connection
MATERIAL, BODY All CRES welded inline
ELEMENT Twilled Dutch double-weave wire cloth
PORTS, INLET 0.25-in. o.d. tube (brazed into system by Aeroquip
process)
OUTLET Same as inlet
MOUNTING
OPERATING TEMPERATURE RANGE 41 to 122 °F (5 to 50 °C)
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE ITTRI lists (ref. 8)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15241-694-1 and -2
DESCRIPTION Wire-mesh element liquid filter
QUAL_FICATION STATUSFLTSATCOM
PROPELLANT/FLUID N2H4
RATING, ABSCITTE 10 μm
PRESSURE, OPERATING 350 psi
PROOF
BURST
DIFFERENTIAL 0.50 psid
RATED FLOW 60 1bm/hr
RAIED FLOW 60 10m/nc
THROUGHPUT
LEAKAGE, EXTERNAL
DERIVACE, EVITIVACE
MASS
DIMENSIONS
51 Mb1
MATERIAL, BODY
ELEMENT
PORTS, INLET
OUTLET
MOUNTING
OPFRATING TEMPERATURE RANGE 40 to 120 °F (for -1) and 150 °F (for
2)
VIBRATION, RANDOM 20.8g rms
SINE
SINE_ACCELERATION_15q
SINE
SINE ACCELERATION 15g SHOCK 2500g
SINE ACCELERATION 15g SHOCK 2500g LIFE, SERVICE 5 yr
SINE ACCELERATION 15g SHOCK 2500g LIFE, SERVICE 5 yr CYCLE
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME COST
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME COST
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME COST
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME COST
SINE ACCELERATION 15q SHOCK 2500q LIFE, SERVICE 5 yr CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Wintec, Brunswick
PART NUMBER 15267-602
DESCRIPTION
QUALIFICATION STATUS Classified program
PROPELLANT/FLUID Aerozine 50, GN2, GHe, alcohol, Freon
RATING, ABSOLUTE 10 μm
PRESSURE, OPERATING 400 psia (276 N/cm ²) PROOF
BURST
DIFFERENTIAL 2.00 psid
RATED FLOW 2520 lbm/hr
MUDOLIGUDIM
THROUGHPUT
LEARAGE, EXIERWAL
MASS
DIMENSIONS
MATERIAL, BODY
ELEMENT
PORTS, INLET
OURT FIRE O SO in Aubo
OUTLET 0.50-in. tube MOUNTING
FIGURITING
OPERATING TEMPERATURE RANGE 40 to 140 °F
VIBRATION, RANDOM
SINEACCELERATION
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY TEAD TIME
LEAD TIMECOST
REMARKS
DATA SOURCE Winter product data sheet - 1985 and Aerospace
Corporation report (ref. 9)

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MANUFACTURER Wintec, Brunswick
PART NUMBER 15267-60.
DESCRIPTION
QUALIFICATION STATUS Skylab
PROPELLANT/FLUID Air, GN2, GO2
RATING, ABSOLUTE 10 µm
PRESSURE, OPERATING 300 psia (208 N/cm ²)
PROOFBURST
DIFFERENTIAL 25 psid
DIII HIMMIIII ao pois
RATED FLOW 50 SCFM
THROUGHPUT
LEAKAGE, EXTERNAL_
MASS
DIMENSIONS_
MATERIAL, BODY
ELEMENT
PORTS, INLET
PORTS, INLET_
OUTLET_ MS 33656-4
MOUNTING
ODERAMING MEMBERAMINE DANCE (5 to 275 OF
OPERATING TEMPERATURE RANGE65 to 275 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Winter product data sheet - 1985 and Aerospace
Corporation report (ref. 9)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15267-604
DESCRIPTION
QUALIFICATION STATUS Skylab
PROPELLANT/FLUID
RATING, ABSOLUTE 10 μm
PRESSURE, OPERATING 6000 psia (4160 N/cm ²)
PROOF
BURST
DIFFERENTIAL
RATED FLOW
THROUGHPUT
LEAKAGE, EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY
ELEMENT
PORTS, INLET
OUTLET
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME_
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Wirtec, Brunswick
PART NUMBER 15312-501-1
DESCRIPTION Woven-wire element liquid-propellant filter
QUALIFICATION STATUS USAF P95 satellite PROPELLANT/FLUID N2H4 RATING, ABSOLUTE 25 µm
PRESSURE, OPERATING 415 psia (286 N/cm ²) PROOF 915 psia (630 N/cm ²)
BURST 1215 psia (837 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.075 lbm/s N_2H_4 at 2 psid and 70 °F (0.034 kg/s at 1 N/cm ² and 21 °C)
THROUGHPUT
LEAKAGE, EXTERNAL No GN ₂ bubbles at 415 psia (286 N/cm ²) in Freon
TF for 2 min
MASS 0.75 lbm (0.34 kg)
DIMENSTONS
MATERIAL, BODY 300 series CRES
ELEMENT 300 series CRES
PORTS, INLET AN-818-GJ "B" nut and MS 20819-GJ sleeve
OUT ET Camp og inlot
OUTLET Same as inlet MCUNTING
FR ONT ING
OPERATING TEMPERATURE RANGE_
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE_
CYCLESHELF
RELIABILITY
LEAD TIME
REMARKS
DATA SOURCE IITRI lists (ref. 8)
DUTU SOOKOR TITKI TISCS (TGI. 0)

MANUFACTURER Wintec, Brunswick
PART NUMBER 15312-501-3
DESCRIPTION Woven-wire element liquid-propellant filter
OUNT TETCAMION CHAMIC TICAE DOS gotollito
QUALIFICATION STATUS USAF P95 satellite PROPELLANT/FLUID N2H4
RATING, ABSOLUTE 25 µm
Terrino, Abbohori 25 mm
PRESSURE, OPERATING 415 psia (286 N/cm ²)
PROOF 915 psia (630 N/cm ²)
BURST 1715 psia (1182 N/cm ²)
DIFFERENTIAL
RATED FLOW 0.075 lbm/s at 2 psid and 70 °F (0.034 kg/s at
1 N/cm ² and 21 °C)
THROUGHPUT I FAVACE EXTERNAL No CN- bubbles at appraising processing authorized
LEAKAGE, EXTERNAL No GN ₂ bubbles at operating pressure submerged in Freon TF for 2 min
MASS 0.46 lbm (0.20 kg)
DIMENSIONS
MATERIAL, BODY 300 series CRES
ELEMENT 300 series CRES
PORTS, INLET 0.375-ino.d. tube
OUT THE Company in late
OUTLET Same as inlet
MOUNT I NG
OPERATING TEMPERATURE RANGE
OLDICATING TENEDICATORE REMODE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report (ref. 9)
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MANUFACTURER Abex Corporation
PART NUMBER AM3C
DESCRIPTION Hydraulic pump
QUALIFICATION STATUS Space shuttle (rudder/speed brake)
DRADELT AND /DITTED
PROPELLANT/FLUID
PRESSURE, MAX INLET
MAY OTHER
MAX OUTLET_
RATIORATED FLOW
LEAKAGE, INTERNAL_
DIMENSIONS
MACERIAL, BODY
SEALS.
INTEGRAL CHECK VALVE
FURTS, SIZE & TYPE
MOTOR, VOLTS
MOTOR, VOLTS
POWER OUTPUT
ELECTRICAL CONNECTION
RPM_
DUTY CYCLE
COOLING METHOD
PICUNIING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
GIND
WOODDITA:LIAN
SHOCK_
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Abex product data sheet - 1984

MANUFACTURER Abex Corporation
PART NUMBER AP05VC DESCRIPTION Multiple axial piston, single-stage, variable-volume
pump
QUALIFICATION STATUS Aircraft - Boeing 707, 727, 737; McDAC DC8;
SNIAS A300, A310; etc.
PROPELLANT/FLUID Hydraulic phosphate ester, MIL-H-5606,
MIL-L-7808, MIL-H-83282
111111111111111111111111111111111111111
PRESSURE, MAX INLET 30 psi
MAX OUTLET 30 psi
RATIO 100:1
RATED FLOW 4.4 GPM (16.7 L/min)
LEAKAGE, INTERNAL
MASS 1.9 lbm (0.86 kg)
DIMENSIONS 3.094 by 3.094 by 2.90 in. (7.86 by 7.86 by 7.46 cm)
MATERIAL, BODY
SEALS
INTEGRAL CHECK VALVE
PORTS, SIZE & TYPE AND10050-6 (pressure and suction),
-4 (case drain and seal drain)
MOTOR, VOLTS
WATTS
POWER OUTPUT
ELECTRICAL CONNECTION_
RPM 12,000
DUTY CYCLE
COOLING METHOD
MOUNTING AND10260 type X
OPERATING TEMPERATURE RANGE -65 to 275 °F (-54 to 135 °C)
VIBRATION, RANDOM
SINE_
ACCELERATION
SHOCK
LIFE, SERVICE 2000-hr normal operation
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Allowed particle contamination up to 40 µm. Motor is
separate from compressor.
DATA SOURCE Abex product data sheet - 1984

MANUFACTURER Abex Corporation
PART NUMBER AP27V
DESCRIPTION Multiple axial piston, single-stage pump
QUALIFICATION STATUS Shuttle orbiter and SRB
PROPELLANT/FLUID Phosphate esters, MIL-H-5605, MIL-L-7808, MIL-H-83282
PRESSURE, MAX INLET 50 psi
MAX OUTLET 3000 psi
RATIO 60:1
RATED FLOW 90 GPM (341 L/min)
LEAKAGE, INTERNAL
MASS 29.75 1bm (13.49 kg)
DIMENSIONS 9.8 in. approximate length (25 cm)
DIFEMSIONS 9.0 III. approximate rength (25 tm)
MATERIAL, BODY
SEALS
INTEGRAL CHECK VALVE
PORTS, SIZE & TYPE MS 33649-20 (suction), -16 (outlet), -8 (case
drain)
MOTOR, VOLTS
WATTS
POWER OUTPUT
ELECTRICAL CONNECTION
RPM 5000
DUTY CYCLE
COOLING METHOD
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 275 °F (-54 to 135 °C)
VIBRATION, RANDOM_
SINE_
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Motor is a separate item
DATA SOURCE Abex product data sheet - 1984

MANUFACTURER Bendix Fluid Power Division
PART NUMBER 33E08-1
DESCRIPTION Motor-driven, double-ended, nonlubricated piston
OURI TETCAMION CORMIC
QUALIFICATION STATUS
PROPELLANT/FLUID_ Air
PRESSURE, MAX INLET 1 atm
MAX OUTLET 20 psig RATIO 2.36:1
RATED FLOW 3 CFM
RATED FLOW 3 CFM LEAKAGE, INTERNAL
MASS 13 1bm
DIMENSIONS
MATERIAL, BODY
SEALS TFE (piston)
INTEGRAL CHECK VALVE
PORTS, SIZE & TYPE
MOTOR, VOLTS 25 to 31 Vdc WATTS 527
WATTS 527
WATTS 527 POWER OUTPUT
ELECTRICAL CONNECTION
RPM
DUTY CYCLE Continuous
COOLING METHOD
MOUNTING
OPERATING TEMPERATURE RANGE -25 to 125 °F
VIDDATION DANDOM
VIBRATION, RANDOM
O TITLE
ACCELERATIONSHOCK
SHOCK
LIFE, SERVICE 1000 hr
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS Designed for operation at 10,000-ft altitude max.,
integral relief 15 to 25 psi
DATA SOURCE Bendix product data sheet - 1985

MANUFACTURER Lexair Inc.
PART NUMBER P57228
DESCRIPTION Two-stage, convection cooled w/intercooler
QUALIFICATION STATUS U.S. Navy submarine
PROPELLANT/FLUID CO2
PRESSURE, MAX INLET 10 psig
MAX OUTLET 550 psi
RATIO 22:1
RATED FLOW 1.2 to 3.5 SCFM (8 to 24 lbm/hr)
LEAKAGE, I TERNAL
MASS 44 lbm (30.8 lbm possible)
DIMENSIONS 12.84 by 12.35 by 18.1 in.
MATERIAL, BODY
SEALS
INTEGRAL CHECK VALVE
PORTS, SIZE & TYPE
MOTOR, VOLTS
WATTS Optional
POWER OUTPUT 0.8 to 1.6 bhp
ELECTRICAL CONNECTION
RPM
DUTY CYCLE COOLING METHOD
MOTIVITING From 0 521 in diam halos at 6 29 hr 7 16 in
MOUNTING Four 0.531-in. diam holes at 6.28 by 7.16 in.
OPERATING TEMPERATURE RANGE to 340 °F
WIDDAMION DANDOM
VIBRATION, RANDOM
SIND
ACCELERATIONSHOCK
BROCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST \$6680 w/o motor or ≈ \$9000 w/motor per unit in 1985
REMARKS Mineral oil pressure lubricated; may require modifications
for microgravity operation; convection cooled
TOT MIDIOGRAPHO OPOLICIONAL CONTROLLON COULCE
DATA SOURCE Lexair product data sheet - 1985
Fig. Colica Boscit Product Gata Silvet 1900

MANUFACTURER Metal Bellows Division
PART NUMBER DX27312
DESCRIPTION Three-stage bellows gas compressor
QUALIFICATION STATUS Not qualified; MORL research
PROPELLANT/FLUID
PRESSURE, MAX INLET 30 psia
MAX OUTLET 300 psia
PATTO 10:1
RATIO 10:1 RATED FLOW 0.5 SCFM min.
TENUNCE INDEPART
LEAKAGE, INTERNAL
MASS 25 1bm
DIMENSIONS
MATERIAL, BODYSEALS
SEALS
INTEGRAL CHECK VALVE
PORTS. SIZE & TYPE
MOTOR, VOLTS 200 V (three phase)
WATTS 700 max. POWER OUTPUT 0.38 hp ELECTRICAL CONNECTION
POWER OUTPUT 0.38 hp
ELECTRICAL CONNECTION
RDM 3700
RPM 3700 DUTY CYCLE
COOLING WEMPOD
COOLING METHOD_
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST Four units \$39,175 in 1972 (including \$22,500 engineering)
REMARKS Motors are no longer available; design modification
·
necessary
DATA SOURCE Metal Bellows drawing DX27312 - 1973

MANUFACTURER Metal Bellows Division
PART NUMBER D41609
DESCRIPTION Single-stage, bellows gas pump
QUALIFICATION STATUS
PROPELLANT/FLUID seon
PRESSURE, MAX INLET
MAX OUTLET
RATIO 2.6:1 (estimated based on 24 psid)
RATED FLOW
LEAKAGE, INTERNAL 3.0x10 ⁻⁶ SCCS air at 1 atm
MASS 7 1bm
DIMENSIONS
WARD LAT DODY
MATERIAL, BODY
SEALSINTEGRAL_CHECK_VALVE
PORTS, SIZE & TYPE SS-400-1-2 (inlet); SS-400-2-2 (outlet)
NOTION VOLUE 20+7 VAC
MOTOR, VOLTS 28±7 Vdc
WATTS 12 max. average
POWER OUTPUT
ELECTRICAL CONNECTION
RPM 0 to 3000
DUTY CYCLE 3 hr continuous/24 hr; 1000 cycles
COOLING METHOD MOUNTING
OPERATING TEMPERATURE RANGE -20 to 70 °C (-4 to 158 °F)
OPERATING TEMPERATURE RANGE -20 to 70 C (-4 to 136 f)
VIBRATION, RANDOM Per table 1 and fig. 1 (NAS5-28178 S.O.W.)
SINE
ACCELERATION ±15g
SHOCK
bliock
LIFE, SERVICE 2 to 4 yr
CYCLE CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
ICHACCO
DATA SOURCE Metal Bellows drawing D41609 - 1985
Dilli Comed Metal Dellong alaming Dilot, 1900

MANUFACTURER Moog Inc.	
PART NUMBER Model 50-503 DESCRIPTION Circulator pump	
DESCRIPTION CITCUIATOL DUMP	
QUALIFICATION STATUS <u>Peacekeeper - inertial measu</u>	rement unit
PROPELLANT/FLUIDFC-77	
PRESSURE, MAX INLET	
MAX OUTLET (Rise) 19 psid	
RATIO 2.3:1 (from 1 atm)	
RATED FLOW 1.0 GPM at 19 psid LEAKAGE, INTERNAL	
MASS	
DIMENSIONS 2.726 by 2.001 by 2.59 in.	
MATERIAL, BODY Al alloy	
SEALS Viton	
INTEGRAL CHECK VALVE	
PORTS, SIZE & TYPE	
MOTOR, VOLTS 40	
WATTS 110	
POWER OUTPUT	
ELECTRICAL CONNECTION_	
RPM 24,000 DUTY CYCLE	
COOLING METHOD	
MOUNTING	
OPERATING TEMPERATURE RANGE	
VIBRATION, RANDOM	
SINE_	
ACCELERATIONSHOCK	
LIFE, SERVICE 10 yr	
CYCLE 4000	
SHELF	
RELIABILITY 40 failures per million operating hou	rs
LEAD TIME	
COSTREMARKS Alternative motor possible	
WELLING WITCHTINGTIAG WOLOT DOSSIDIE	
DAMA GOVEDON 15 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	•
DATA SOURCE Moog Model 50-503 Circulator Pump Rev	A
(Product description report) - 1985	

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 21SN04-22
DESCRIPTION
ATT
QUALIFICATION STATUS Satellice (Walter Kidde)
PROPELLANT/FLUID
TROT DIDDINGT/ L DO LD
PRESSURE, OFF 18±2 psig
RESET 12 psig min.
MAX OPERATING
1K001 30 ps19
BURST 75 psig
חווייע כעכוד
DUTY CYCLE
DIMENSIONS
MATERIAL
PORT, SIZE & TYPE 0.736-indiam special plug
VOLTAGE 28±5 to 5.5 Vdc
WATTS 66
ELECTRICAL CONNECTION
MOUNTING Four-bolt flange; 0.177-indiam holes on a 1.375 in.
square
OPERATING TEMPERATURE RANGE 40 to 120 °F
WIDDA WION DANDON
VIBRATION, RANDOM
OINE
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COSTREMARKS
REMARNS
DATA SOURCE Consolidated Controls drawing R21SN04-22 - 1985

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 21SN04-93
DESCRIPTION
QUALIFICATION STATUS Satellite (Walter Kidde)
PROPELLANT/FLUID_
PRESSURE, OFF 3.2±0.15 psig
RESET 2.85 psig min.
MAX OPERATING
PROOF 50 psig
MAX OPERATING PROOF 50 psig BURST 75 psig
DUTY CYCLE
MASS
DIMENSIONS 4.06 in. max. by 1.75 in. diam less leads and port
MATERIAL
PORT, SIZE & TYPE 0.483-indiam special plug
VOLTAGE 28±5 to 5.5 Vdc
WATTS 17
ELECTRICAL CONNECTION 2 lead wires
MOUNTING
OPERATING TEMPERATURE RANGE 40 to 120 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
name dermon description of description of the motorrow of the
DATA SOURCE Consolidated Controls drawing R21SN04-93 - 1985

MANUFACTURER Consolidated Controls Corporation				
PART NUMBER 21SN22-1				
DESCRIPTION				
QUALIFICATION STATUS Saturn (McDonnell Douglas)				
PROPELLANT/FLUID LOX				
PRESSURE, OFF 41.0 psia				
RESET 38.0 psia min.				
MAX OPERATING				
FROOT 74 PS18				
BURST 125 psia				
DUTY CICLE				
MASS				
DIMENSIONS 4.90 in. max. by 3.625 in. diam				
MATERIAL				
PORT, SIZE & TYPE MC172-4, MC172-2 test port				
VOLTAGE 30 Vdc WATTS 15				
ELECTRICAL CONNECTION Mates w/Bendix PTOGE-8-4S				
MOUNTING				
OPERATING TEMPERATURE RANGE200 to 175 °F				
WIDDAMION BANDOM				
VIBRATION, RANDOM_				
GINE				
ACCELERATIONSHOCK				
LIFE, SERVICE				
CYCLE				
SHELF				
RELIABILITY				
LEAD TIME				
COSTREMARKS				
REMARKS				
DATA SOURCE Consolidated Controls drawing R21SN22-1 - 1985				

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 21SN41 series
DESCRIPTION High temperature, low pressure
QUALIFICATION STATUS Airbus
DEODELT AND LET LITD
PROPELLANT/FLUID
PRESSURE, OFF 0.75 to 40 psig
RECE!
MAX OPERATING 80 psig
rkoor 120 psig
BURST
DUTY CYCLE
DIMENSIONS 1.97 in. less connections and port by 1.76 in. diam
Diamotono 1/3/ In 1000 democratic dia pote // 1/1/ In diam
MATERIAL CRES
PORT, SIZE & TYPE MS 33514E6
VOLTAGE_
WAIIS
ELECTRICAL CONNECTION Mates w/MS 24266R12T3S
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 400 °F
VIBRATION RANDOM
VIBRATION, RANDOM SINE ACCELERATION
WOODDING TON
SHOCK
The deputer
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
LEAD TIME
COS1
REMARKS
DATA SOURCE Consolidated Controls product data sheet - 1985

	R Consolidated Controls Corporation
	212C50-54H
DESCRIPTION	
	ON STATUS Peacekeeper (United Technologies Chemical
Systems D	ivision)
PROPELLANT/	FLUID Freon 12
PRESSURE, O	FF 9.25 psia
7/	TODI 0.0 bold will.
M	AX OPERATING 220 psia
P	ROOF 300 psia
В	URST 485 psia
DUTY CYCLE	
MASS	
	4.38 by 2.25 by 1.28 in.
MATERIAL	
	& TYPE
	Vdc
WATTS 112	
	CONNECTION Mates w/ G&H Technology P/N BLG6F11-5SN
THECTIVECUM	Commercial interest with the interest of the property of the commercial comme
MOUNTING	
100111110	
ODERATING T	EMPERATURE RANGE 23 to 121 °F
OLDIGITINO 1	20 0 22 1
VIBRATION,	PANDOM
ACCRIT EDATE	SINE
WCCEPEKWI IO	N
SHOCK	
TIDD CEDIII	· OTI
LIFE, SERVI	
CYCLE	
SHELF	
RELIABILITY	
LEAD TIME_	
COST	
REMARKS 1x	10 ⁻⁷ SCCS He at 220 psia leakage
DATA SOURCE	Consolidated Controls drawing R212C50-54H - 1985

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 212C117-5
DESCRIPTION
QUALIFICATION STATUS Standard missile (Aerojet) (Morton Thiokol)
QUALIFICATION STATUS <u>standard missite (Aerojet) (Morton intokor)</u>
PROPELLANT/FLUID
PRESSURE, OFF 370 psig RESET 160 psig
MAX OPERATING
MAX OPERATING PROOF 4000 psi
BURST 7500 psi
DUTY CYCLE
DIMENSIONS 2 921 in by 1 00 in diam
DIFFENSIONS 2.021 III. By 1.00 III. GIGH
MATERIAL_
PORT, SIZE & TYPE MS 33656E3
VOLTAGE
WATTS ELECTRICAL CONNECTION MC 2112H 103 CD
ELECTRICAL CONNECTION MS 3113H-10A-6P
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 200 min.
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Consolidated Controls drawing R212C117-5 - 1985
DELLE CONSTITUENCE CONCLOTS GLAWING RELECTIVES - 1905

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 218C50
DESCRIPTION Vacuum switch
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OFF 1- to 30-in. mercury (vacuum)
RESET
MAX OPERATING PROOF 150 percent max. operating
BURST
DUTY CYCLE
MASS 0.23 1bm
DIMENSIONS 2.94 in. by 1.40 in. diam
MATERIAL NOTE: AND 10050 A
PORT, SIZE & TYPE AND10050-4
VOLTAGEWATTS
ELECTRICAL CONNECTION Mates w/MS 3106-10SL-3S
MOUNTING
ODEDATING TEMPEDATURE DANCE AS to 250 OF
OPERATING TEMPERATURE RANGE -65 to 250 °F
VIBRATION, RANDOM_
SINE
ACCEDENALION
SHOCK
LIFE, SERVICE
CYCLE 50,000 min.
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Meets MIL-E-5272
DATA SOURCE Consolidated Controls product data sheet - 1985

MANUFACTURER ITT Neo-Dyn
PART NUMBER 1103P, 1173P, and 1103P
DESCRIPTION Welded diaphragm type, pneumatic, hydraulic
QUALIFICATION STATUS
DEODELT AND LET HTD
PROPELLANT/FLUID
PRESSURE, OFF 1 to 100 psig (psia for 1193P)
RESET
MAX OPERATING
PROOF 300 psig for 1103P and 1193P, 100 psig for 1173P
BURST
DUTY CYCLE
MASS 0.13 lbm
DIMENSIONS
MATERIAL CRES
PORT, SIZE & TYPE MS 33656E4
VOLTAGE 28 Vdc rated
VOLTAGE 28 Vdc rated WATTS 196 (28 for 1193P)
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE65 to 275 °F ambient
PATTONI OLI TALIDOM
VIBRATION, RANDOM
SINE J to 2000 Hz; 0 to 15g ACCELERATION
SHOCK 25 to 50g
5110CK 23 CO 309
LIFE, SERVICE
CYCLE 75,000 to 100,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Optional: 100 to 1500 switch-off setpoint range; 550 °F
max. ambient temperature, 600g vibration
DATA SOURCE ITT Neo-Dyn product data sheet - 1985
Dilli Doored III Roo Din product data biscot 1900

MANUFACTURER ITT Neo-Dyn
PART NUMPER 1105P and 1106P
DESCRIPTION Diaphragm type, pneumatic (hydraulic optional)
QUALIFICATION STATUS
PROPELLANT/FLUID
DDEGGIDE OF 1 to COO main
PRESSURE, OFF 1 to 600 psig RESET
MAX OPERATING
PROOF 4500 psig BURST
DURS1
DUTY CYCLE
MASS 0.13 lbm
DIMENSIONS
DIFIENGIONO
MATERIAL Al (CRES optional for 1105P only)
PORT, SIZE & TYPE MS 33656E4
VOLTAGE 28 Vdc rated
WATTS 196
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 275 °F ambient
VIBRATION, RANDOM
SINE 0 to 2000 Hz; 0 to 15g
ACCELERATION
SHOCK 25 to 50g
LIFE, SERVICE
CYCLE 75,000 to 100,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Optional: 600 to 1400 psig switch-off setpoint range,
dry circuit, 350 °F max. ambient OP temperature; 600g vibration;
CRES body (1105P); hydraulic medium optional; hermetically sealed
electricals
DAMA GOITHOR IMM Non Dama mandama data abasa 1005
DATA SOURCE ITT Neo-Dyn product data sheet - 1985

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 2-54
DESCRIPTION Snap action SPDT, diaphragm
QUALIFICATION STATUS
PROPELLANT/FLUID Any material-compatible fluid
PRESSURE, OFF (ON) 1 to 300 psig
RESET
MAX OPERATING 300 psig
PROOF 600 psig
BURST
DUTY CYCLE
MASS 0.11 lbm (0.05 kg)
DIMENSIONS 2.50 in. by 0.87 in. hex (6.35 by 2.21 cm)
MAMERIAI Michael C 17 7DU CDEC
MATERIAL NiSpan-C, 17-7PH CRES PORT, SIZE & TYPE MS 33656-4 or optional
VOLTAGE 28 Vdc (rated)
WATTS 196 W (rated)
ELECTRICAL CONNECTION Solder pins or optional
MOUNTING
MOUNT ING
OPERATING TEMPERATURE RANGE -58 to 302 °F (-50 to 150 °C)
VIBRATION, RANDOM
SINE 10g at 20 to 2000 Hz
ACCELERATION 100g
SHOCK 100g for 11 ms, 1000g for 0.6 ms
LIFE, SERVICE
CYCLE 25,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Systron Donner product data sheet - 1986
DATA BOOKET BASCION DONNET PRODUCE data sheet - 1300

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 4-902
DESCRIPTION Strain gage, N.O.
OTTAT TET CAMTON CHARTIC
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, OFF 0 to 5000 psia/psig
RESET_
MAX OPERATING 0 to 5000 psia/psig
PROOF 2X max. BURST 5X max.
DORDI OR MICA.
DUTY CYCLE
MASS 0.75 lbm (0.34 kg)
DIMENSIONS 1.50-in. hex by 3.60 in. less port (3.81 by 9.14 cm)
MANUEL TAT 17 701 ODEO
MATERIAL 17-7PH CRES PORT, SIZE & TYPE AN893-4S modified
VOLTAGE 32 Vdc; 28 Vdc nom.
WATTS
ELECTRICAL CONNECTION PT1H-8-4P
MOUNTING
OPERATING TEMPERATURE RANGE -58 to 248 °F (-50 to 120 °C)
orbitalitino ribitalitationi rationi oo to 210 1 (oo to 120 C)
VIBRATION, RANDOM_
SINE 50g peak to 2000 Hz
ACCELERATION 100g
SHOCK 100g for 11 ms
LIFE, SERVICE
CYCLE 1x109
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Systron Donner product data sheet - 1936

MANUFACTURE	R Systron Donner, Edcliff
PART NUMBER	610 and 612
DESCRIPTION	Low-pressure differential switch; single and dual
QUALIFICATION	ON STATUS
PROPELLANTY.	FLUID
PRESSURE, O	FF 0.2 to 20 in. H ₂ O
K:	ESET.
M	AX OPERATING ROOF 50 psig
B	URST
DUTY CYCLE_	
MASS	
DIMENSIONS_	2-in. hex by 1.63 or 2.40 in. (5.08 by 4.14 or 6.10 cm)
MA METO TAT	
MATERIAL	& TYPE 1/8-27 female pipe thread
VOLTAGE 11	& TIPE 1/8-2/ Telliate pipe thread
WATTS 575	
ELECTRICAL	CONNECTION Solder pins
MOUNTING	
OPERATING T	EMPERATURE RANGE
VIBRATION,	RANDOM
	OTNE
WCCTTTTWT TO	10
SHOCK	
ווער פרסאו	CE
CYCLE	OD
SHELF	
RELIABILITY	
LEAD TIME	
COST	
REMARKS	
DATA SOURCE	Systron Donner product data sheet - 1986

MANUFACTURER Aerodyne Controls Corporation
PART NUMBER 4022
DESCRIPTION Inline
QUALIFICATION STATUS DOD qualified
PROPELLANT/FLUID Pneumatic
PRESSURE, OPERATING 300 psig
CRACKING 1.0 psid min.
PROOF 750 psig
PITPOT 1500 poid
RATED FLOW 4.0 SCFM (FEOD - 0.11 in.)
210 0000 (0000 0000)
LEAKAGE, INTERNAL Zero at 2.5 to 750 psid
EXTERNAL Zero at 300 psig
MASS 0.88 lbm
DIMENSIONS 1 54 by 0 68 in boy
MATERIAL BODY
SEAT/SEALSPRING
PORTS, SIZE & TYPE MS 33656G4 (inlet)
PORIS, SIZE & TIPE PIS 33030G4 (INTEC)
MOUNTING
PRODUCT TING
ODEDAMING MEMBERAMINE DANCE CE +- 105 OF
OPERATING TEMPERATURE RANGE65 to 185 °F
TITED A CITAL DANDON
VIBRATION, RANDOM
SINEACCELERATION
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE 50,000 min
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS

DATA SOURCE Aerodyne Controls product data sheet - 1985

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2662-0001-13, -15
DESCRIPTION
QUALIFICATION STATUS Space shuttle ARPCS
QUALIFICATION STATUS Space Structle ARPCS
PROPELLANT/FLUID_O2, N2
PRESSURE, OPERATING 0 to 1250 psig
מדו א מיני די גדמו
PROOF 1875 psig
BURST 2500 psiq
RATED FLOW 75 lbm/hr at 100 psig, at 2 psid
TENTE OF THE TOTAL OF A COOK of 10 to 1000 mail
LEAKAGE, INTERNAL 0.2 SCCM at 10 to 1250 psid
EXTERNAL 0.2 SCCM
MASS 0.184 lbm
MATERIAL BODY
DIMENSIONS MATERIAL, BODY SEAT/SEAL SUBJECT: SERVING
SDRING
PORTS, SIZE & TYPE
TORIO, OIBB & IIIB
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

DADO ATTROPO TIOAOMI AMOLTI	
DESCRIPTION	
QUALIFICATION STATUS Saturn V (Martin Mariett	a)
PROPELLANT/FLUID	
PRESSURE, OPERATING 6000 psi CRACKING PROOF BURST	
RATED FLOW	
LEAKAGE, INTERNAL EXTERNAL MASS	
DIMENSIONS MATERIAL, BODY 316 CRES SEAT/SEAL Buna-N SPRING 302 CRES	
PORTS, SIZE & TYPE MS 33656-4	
MOUNTING	
OPERATING TEMPERATURE RANGE -40 to 250 °F	
VIBRATION, RANDOM	
SINEACCELERATIONSHOCK_	
LIFE, SERVICECYCLE	
SHELF RELIABILITY LEAD TIME COST	
REMARKS	
DATA SOURCE Aerospace Corporation report (ref	E. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER H299T-16BB (M.M. P/N 47E8-10F)
PART NONDER 112591-10DD (H.H. F/N 47E0-10F)
DEGGD I DELON
DESCRIPTION QUALIFICATION STATUS Viking (Martin Marietta)
QUADIFICATION STATOS VIKING (MAICH MAILECCA)
PROPELLANT/FLUID
PRESSURE, OPERATING 6000 psi
CRACKING
PROOF
DOTOI
RATED FLOW
T.EAKAGE INTERNAL
LEAKAGE, INTERNAL EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 303 CRES SEAT/SEAL Buna-N SPRING 302 CRES
SPRING 302 CRES
PORTS, SIZE & TYPE AND10050-16
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 250 °F
Of Blattino Third Blatton Tourist Tour
VIBRATION, RANDOM_
OTHE
ACCEDENTION
SHOCK
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER HP220T-8TT to -16TT
DESCRIPTION
QUALIFICATION STATUS Viking fuel systems (Martin Marietta)
PROPELLANT/FLUID
2. SSURE, OPERATING 6000 psi
CRACKING PROOF
BURSTRATED FLOW
LEAKAGE, INTERNAL
EXTERNAL MASS
DIMENSIONS
MATERIAL, BODY 303 CRES SEAT/SEAL Teflon
SPRING 302 CRES PORTS, SIZE & TYPE MS 33656-8 to -16
MOUNTING
OPERATING TEMPERATURE RANGE -320 to 400 °F
VIBRATION, RANDOM SINE
ACCELERATION SHOCK
LIFE, SERVICE
CYCLE
SHELF RELIABILITY
COST COST
REMARKS M.M. P/N's 47D9-4 to -7
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER HP280T-4TF4 (Aerojet P/N 1159059)
DESCRIPTION
QUALIFICATION STATUS Delta/E, Delta/F (Aerojet)
PROPELLANT/FLUID
PRESSURE, OPERATING 4500 psi
CRACKING PROOF
PROOF
RATED FLOW_
TEAKAGE INTERNAL
LEAKAGE, INTERNAL EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 303 CRES
MATERIAL, BODY 303 CRES SEAT/SEAL Teflon SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-4
MOUNTING
OPERATING TEMPERATURE RANGE -320 to 400 °F
VIERATION, RANDOM_
OTME
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY I FAD TIME
LEAD TIME COST
REMARKS
DIED GOUDON Develope Company (1956 10)
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER K220T-6TT, -12TT (Gen. Dyn. P/N 27/02108/10)	
	<u> </u>
DESCRIPTION	
QUALIFICATION STATUS Atlas propulsion control box (General	
PROPELLANT/FLUID	
PRESSURE, OPERATING 3000 psi	
CRACKING	
PROOF	
BOK21	
RATED FLOW_	
LEAKAGE, INTERNAL	
EXTERNAL	
MASSDIMENSIONS	
MATERIAL BODY 202 CRES	- No.
SEAT/SEAL Teflon	
SPRING 302 CRES	
PORTS, SIZE & TYPE MS 33656-6/12	
MOUNTING	
PIOONTING	
OPERATING TEMPERATURE RANGE -320 to 400 °F	
VIBRATION, RANDOM_	
SINE	
ACCELERATION	
SHOCK	
LIFE, SERVICE	
CYCLE	
SHELF_	
RELIABILITY	
LEAD TIME	
COST	
REMARKS	
DATA SOURCE Aerospace Corporation report (ref. 10)	

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER K5120T-16TT-38
DESCRIPTION Integral relief check valve
QUALIFICATION STATUS Saturn V (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 2500 psi
CRACKING
PROOF
DURSI
RATED FLOW
T EAVACE TAMEDALAT
LEAKAGE, INTERNAL
MASS
THENC TONC
MARIED LAT DODY 202 ODEG
SEAT/SEAL Teflon
PORTS, SIZE & TYPE MS 33656-16
MOUNTING
OPERATING TEMPERATURE RANGE -320 to 400 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P1-602, P2-602 (Bell P/N 8247-472065, -472070)
DESCRIPTION
QUALIFICATION STATUS Gemini - Agena engine
PROPELLANT/FLUID
PRESSURE, OPERATING 1700 psig
CRACKING
PROOF
DONO1
RAIED FLOW
LEAKAGE, INTERNAL
P.A.I.P.K.W.A.I.
MASSDIMENSIONS
DIMENSIONS MAMERIAL DODY 247 CRES (for D1) 2024 E251 (for D2)
MATERIAL, BODY 347 CRES (for P1), 2024-T351 (for P2) SEAT/SEAL Teflon (for P1), Butyl (for P2)
SPRING 302 CRES
PORTS, SIZE & TYPE MS 24385-5, MS 24385-4, MS 24386-4
MOUNTING
OPERATING TEMPERATURE RANGE -35 to 160 °F
VIBRATION, RANDOM_
GINE
ACCELERATIONSHOCK
<u> </u>
LIFE, SERVICECYCLE
CUPI D
RELIABILITY TEAD TIME
LEAD TIME
COS1
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P3-319 (Gen. Dyn. P/N GD/A27-08565-1)
DESCRIPTION
QUALIFICATION STATUS Atlas vernier solo system (General Dynamics)
QUILLI TOTALION DITTION TELLED VOLITICE BOTO BYBECH (OCHICLET DYNAMICS)
DDODET I ANY /FI III D
PROPELLANT/FLUID
DDEGGEDE ODEDAMING 100 main
PRESSURE, OPERATING 120 psig
CRACKING
FROOF
DOK51
RATED FLOW
LEAKAGE, INTERNAL
MASS
DIMENSIONS
DIMENSIONS MATERIAL, BODY 2024-T351 SEAT/SEAL Buna-N SPRING 302 CRES
SEAT/SEAL Buna-N
SPRING 302 CRES
PORTS, SIZE & TYPE MS 24385-4
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE30 to 275 °F
OPERATING TEMPERATURE RANGE -30 to 275 F
TAT TO BE TO ALL DE ALTO ALC
VIBRATION, RANDOM
SINE
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
MERINO
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P6-180 (Aerojet P/N 094516)
2.3.12 370.3221. 20 20 4.1.020 300 27.1. 00 20 20 7
DESCRIPTION CHANGE Delta Allo angine (Acadist Consul)
QUALIFICATION STATUS Delta AJ10-118 engine (Aerojet General)
PROPELLANT/FLUID
DECOME OPERATION 750 main
PRESSURE, OPERATING 750 psig
CRACKINGPROOF
PROOF
RATED FLOW
LEAKAGE, INTERNAL EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL Butyl
SEAT/SEAL Butyl SPRING 302 CRES PORTS, SIZE & TYPE MS 33656-8
MOUNTING
ODEDAMING MEMBEDAMIDE DANCE 20 to 120 °E
OPERATING TEMPERATURE RANGE -20 to 120 °F
VIBRATION, RANDOM
91NF
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME_
COSTREMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P7-425 (Gen. Dyn. P/N GD/A27-01279-3)
PART NUMBER <u>P7-425 (Gen. Dyn. P/N GD/A27-01279-3)</u>
DESCRIPTION Pilot operated
QUALIFICATION STATUS Atlas staging (General Dynamics)
PROPELLANT/FLUID
DEECGIDE OPEDATING 4000 maia
PRESSURE, OPERATING 4000 psig
CRACKINGPROOF
PROOF BURST
RATED FLOW
LEAKAGE, INTERNAL
EVIEWNE
MASS_ DIMENSIONS_ MATERIAL BODY 2024-T351 Al alloy
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL Buna-N, Teflon
SPRING
PORTS, SIZE & TYPE AND10050-4
MOUNTING
OPERATING TEMPERATURE RANGE65 to 180 °F
VIBRATION, RANDOM
0.77473
ACCEPTION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P8-690 (GE P/N 133B2578)
DESCRIPTION Pneumatic
QUALIFICATION STATUL OAO (General Electric)
PROPELLANT/FLUID
PRESSURE, OPERATING 3250 psig
CRACKING
PROOF
DURSI
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL Buna-N
SPRING 302 CRES
PORTS, SIZE & TYPE MS 33514-4
MOUNTING
OPERATING TEMPERATURE RANGE30 to 150 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P14-735 (Gen. Dyn. P/N 27-02109)
DESCRIPTION
QUALIFICATION STATUS Atlas propulsion control box (General
Dynamics) PROPELLANT/FLUID
PRESSURE, OPERATING 1000 psig
CRACKING
PROOF BURST
RATED FLOW
LEAKAGE, INTERNAL EXTERNAL
MASS
DIMENSIONS MATERIAL, BODY 303 CRES
MATERIAL, BODY 303 CRES SEAT/SEAL Teflon
MATERIAL, BODY 303 CRES SEAT/SEAL Teflon SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-8, AND10050-8
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 165 °F
VIBRATION, RANDOM
SIND
ACCELERATIONSHOCK
LIFE, SERVICE
CYCLE
OUTPL
RELIABILITY LEAD TIME
LEAD TIME COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P15-698, P16-698 (Aerojet P/N 1120434,5)
DESCRIPTION
QUALIFICATION STATUS Apollo AJ10-137 engine (Aerojet)
DDODET I AND /EI (IID
PROPELLANT/FLUID
PRESSURE, OPERATING 15 psig
CRACKING
PROOF
DURSI
RATED FLOW
LEAKAGE, INTERNAL
EXICKNAL
mass
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL_Buna-N SPRING_302_CRES
PORTS, SIZE & TYPE MS 33656-4
MOUNTING
OPERATING TEMPERATURE RANGE -40 to 250 °F
OF BIGHT INC. TENT BIGHTONE NAMED. 40 CO 250 1
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COSTREMARKS
ALPIANAS
DATA SOURCE Aerospace Corporation report (ref. 10)
Dili. Could Hologram Colored Labora tol

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P17-698 (Aerojet P/N 1120437)
DESCRIPTION
QUALIFICATION STATUS Apollo AJ10-137 engine (Aerojet)
PROPELLANT/FLUID
PRESSURE, OPERATING 15 psig
CRACKING
PROOF BURST
BURST
RATED FLOW
LEAKAGE INTERNAL
LEAKAGE, INTERNAL EXTERNAL
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY 303 CRES
SEAT/SEAL Buna-N
MATERIAL, BODY 303 CRES SEAT/SEAL Buna-N SPRING 302 CRES PORTS, SIZE & TYPE MS 33656-6
FORTS, STALE & TITL MS 30000 0
MOUNTING
OPERATING TEMPERATURE RANGE -40 to 250 °F
VIRRATION RANDOM
VIBRATION, RANDOM SINE
ACCELERATION
SHOCK
ITEE GENUICE
LIFE, SERVICECYCLE
CUPT F
RELIABILITY
LEAD TIME_
COSI
REMARKS
NATA SOURCE Aerosuace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P24-698 (Aerojet P/N 1181725)
DESCRIPTION
QUALIFICATION STATUS Space shuttle OMS
DRODILL TANIE (TIL TITD
PROPELLANT/FLUID
PRESSURE, OPERATING 500 psig
CRACKING
CRACKINGPROOF
PROOF
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL_
EXTERNAL MASS DIMENSIONS
DIMENSIONS MATERIAL, BODY 304 CRES SEAT/SEAL Butyl SPRING 302 CRES PORTS SIZE & TYPE MS 33656-4
MATERIAL, BODY 304 CRES
SEAT/SEAL BUTY!
PORTS, SIZE & TYPE MS 33656-4
100.10, 01.11 4 11.11 1.10 00000 1
MOUNTING
HOUNTENO
OPERATING TEMPERATURE RANGE -65 to 280 °F
VIBRATION, RANDOM
SINE
ACCEDERAL FOR
SHOCK
T TITE ATTRICT OF
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
COCT
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P25-180 (Gen. Dyn. P/N 55-02446)
DESCRIPTION
QUALIFICATION STATUS Centaur (General Dynamics)
PROPELLANT/FLUID H2O2
PRESSURE, OPERATING 350 psig
CRACKING
PROOF
RATED FLOW
LEAKAGE, INTERNAL EXTERNAL
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY 316 CRES SEAT/SEAL Viton
SPRING 302 CRES
SEAT/SEAL_Viton SPRING 302 CRES PORTS, SIZE & TYPE_AND10050-8
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 350 °F
VIRRATION RANDOM
VIBRATION, RANDOM SINE
ACCIDITAL TON
SHOCK
LIFE, SERVICE
CYCLE
SHELF RELIABILITY
LEAD TIME
CO31
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P29-180, P30-180 (Aerojet P/N 1158525)
DESCRIPTION
QUALIFICATION STATUS Apollo AJ10-118 engine (Aerojet)
PROPELLANT/FLUID
PRESSURE, OPERATING 3000 psig CRACKING PROOF BURST
RATED FLOW
LEAKAGE, INTERNAL EXTERNAL MASS
DIMENSIONS
MATERIAL, BODY 2024-T351 A1 alloy SEAT/SEAL Teflon SERING 302 CRES
PORTS, SIZE & TYPE MS 33656-4
MOUNTING
OPERATING TEMPERATURE RANGE20 to 120 °F
VIBRATION, RANDOMSINE
ACCELERATION
LIFE, SERVICE CYCLE SHELF
RELIABILITY
LEAD TIME COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P45-220 (Hughes P/N 287278, 254207)
DESCRIPTION
QUALIFICATION STATUS Surveyor satellite vernier engine
(Hughes Aircraft)
PROPELLANT/FLUID
PRESSURE, OPERATING 1150 psig
CRACKING
CRACKING
PROOFBURST
DATED FIOM
I DAKACE INTERNAT
LEAKAGE, INTERNAL
EXTERNAL
MASS DIMENSIONS
DIMENSIONS MATERIAL, BODY 6061-T6
MATERIAL, BODY 6061-T6
SEAT/SEAL Teflon
SERING SUZ CRES
PORTS, SIZE & TYPE
NATION TARA
MOUNTING
OPERATING TEMPERATURE RANGE 0 to 300 °F
VIBRATION, RANDOM
DINI
ACCEPTION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Agrospage Corporation report (rof 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P64-344 (Boeing P/N 10-20387)
DESCRIPTION
QUALIFICATION STATUS Boeing project
PROPELLANT/FLUID_LH2_
PRESSURE, OPERATING 130 psig
CRACKING
PROUF
BURST
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL
EXTERNAL MASS DIMENSIONS
MATERIAL BODY 303 CRES
SEAT/SEAL Teflon
SPRING 17-7PH CRES
DIMENSIONS MATERIAL, BODY 303 CRES SEAT/SEAL Teflon SPRING 17-7PH CRES PORTS, SIZE & TYPE MS 33656-6
MOUNTING
OPERATING TEMPERATURE RANGE -424 to 160 °F
TIPPI TION PANDOW
VIBRATION, RANDOM_
SIND
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P75-356
DESCRIPTION
QUALIFICATION STATUS Apollo (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 75 psi
CRACKING
FROOT
DOKGI
RATED FLOW
LEAKAGE, INTERNAL
TIVE TIME TO TAKE THE PROPERTY OF THE PROPERTY
MASS DIMENSIONS
MATERIAL, BODY Al alloy SEAT/SEAL Buna-N SPRING 302 CRES
SEAT/SEAL Buna-N
SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-4
MOUNTING
OPERATING TEMPERATURE RANGE <u>-65 to 275 °F</u>
TITODA OT ANT DANTAGE
VIBRATION, RANDOM
SIND
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 119T1-1PP-35 (GE P/N 47C142684)
DESCRIPTION
QUALIFICATION STATUS BIOSAT (General Electric)
PROPELLANT/FLUID
PRESSURE, OPERATING 215 psig
CRACKING
PROOF BURST BATED FLOW
RATED FLOW_
LEAKAGE, INTERNAL EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 316 CRES SEAT/SEAL Buna-N SPRING 302 CRES
SPRING 302 CRES
PORTS, SIZE & TYPE 1/8-in. NPT
MOUNTING
OPERATING TEMPERATURE RANGE40 to 250 °F
OPERATING TEMPERATURE RANGE -40 to 250 °F
VIBRATION, RANDOM
SINE
ACCEPTATION
SHOCK
I I DE CERUI OF
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)
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MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 220T-24BB-3, 220T-32BB-3 (M.M. P/N 47E8-22F, 2	CF)
FART NONDER 2201-24DD-3, 2201-32DD-3 (N.M. F/N 47E0-22F, 2	OF)
DESCRIPTION	
QUALIFICATION STATUS Viking (Martin Marietta)	
PROPELLANT/FLUID	
PRESSURE, OPERATING 3000 psi	
CRACKINGPROOF	
PROOFBURST	
RATED FLOW	
LEAKACE, INTERNAL	
EXILIMAL	
UMADO LINE DATE DATE DATE DATE DATE DATE DATE DAT	
DIMENSIONS MATERIAL, BODY 303 CRES	
SEAT/SEAL Teflon	
SEAT/SEAL Teflon SPRING 302 CRES	
PORTS, SIZE & TYPE AND10050-24, -30	
MOUNTING	
OPERATING TEMPERATURE RANGE -320 to 400 °F	
VIBRATION, RANDOM_	
OTKE	
ACCEPERGIT ON	
SHOCK	
LIFE, SERVICE	
CYCLE	
SHELF	
RELIABILITY	
LEAD TIME	
CODI	
REMARKS	
DAMA GOIDGE Assessed Grant Live Co. 100	
DATA SOURCE Aerospace Corporation report (ref. 10)	

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 220T-8TT (M.M. P/N 47E8C8)
DESCRIPTION
QUALIFICATION STATUS Viking (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 3000 psi
CRACKING
7 (1) (1)
DO1/D1
RATED FLOW
LEAKAGE, INTERNAL
EALERIAL
MASS
MASS DIMENSIONS
MATERIAL, BODY 303 CRES
DIMENSIONS MATERIAL, BODY 303 CRES SEAT/SEAL Teflon SPRING 302 CRES PORTS, SIZE & TYPE MS 336565-8
SPRING 302 CRES
PORTS, SIZE & TYPE MS 336565-8
MOUNTING
OPERATING TEMPERATURE RANGE320 to 400 °F
VIBRATION, RANDOM
OTME
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 249A-4TT(L)-15 (GE P/N SVS2635)
DESCRIPTION
QUALIFICATION STATUS Nimbus attitude control system (General
Electric)
Electric) PROPELLANT/FLUID
PROPELLANT/FEOID
PRESSURE, OPERATING 3000 psig
CBACKING
CRACKING
PROOF
BURSTBURST
RATED FLOW
TENUNCE TAIMEDAINT
LEAKAGE, INTERNAL
EXTERNAL_
MASS
DIMENSIONS
MATERIAL, BODY 2024-T4 Al alloy
SEAT/SEAL Buna-N
SEAT/SEAL Buna-N SPRING 302 CRES DOPTS SIZE & TYPE MS 236565-4
PORTS, SIZE & TYPE MS 336565-4
MOUNTING
OPERATING TEMPERATURE RANGE40 to 250 °F
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAMA COURCE Assessed Communication and Communica
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 259T-4TT
DESCRIPTION
QUALIFICATION STATUS Sidewinder
PROPELLANT/FLUID
PRESSURE, OPERATING 3000 psig
CRACKING
CRACKING
PROOF
BURST BLOW
RATED FLOW
TENTAGE TAMERANAT
LEAKAGE, INTERNAL
EXIERNAL
PARTIE TOTA
DIMENSIONS
MATERIAL, BODY 303 CRES
MATERIAL, BODY 303 CRES SEAT/SEAL Buna-N SPRING 302 CRES
SPRING 302 CRES
PORTS, SIZE & TYPE MS 336565-4
MOUNTING
OPERATING TEMPERATURE RANGE30 to 275 °F
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
KEPHANG
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 264T2-8TT-25, -16TT-5 (Bell P/N 7161-472070, -25)
DESCRIPTION
QUALIFICATION STATUS <u>Lunar Landing Research Vehicle</u> (Bell Aerospace)
PROPELLANT/FLUID H2O2
PRESSURE, OPERATING 3000 psig
CRACKING
PROOF
BURSTRATED FLOW
KATED LEON
LEAKAGE, INTERNAL
EXTERNAL MASS
DIMENSIONS
MATERIAL, BODY 347 CRES
SEAT/SEAL_ Fluorosilicone
SPRING 302 CRES PORTS, SIZE & TYPE MS 336565-8, -16
PORIS, SIZE & TIPE MS 336363-6, -16
MOUNTING
OPERATING TEMPERATURE RANGE -80 to 350 °F
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
LIFE, SERVICE
CYCLE CYCLE
SHELF
RELIABILITY
LEAD TIME
REMARKS
DATA SOURCE <u>Aerospace Corporation report (ref.</u> 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 859T-8TT
DECORTON
DESCRIPTIONQUALIFICATION STATUSApollo (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 600 psi
CRACKINGPROOF
BURSTRATED_FLOW
LEAKAGE, INTERNAL
EXTERNAL MASS
DIMENSIONS
MATERIAL, BODY 303 CRES SEAT/SEAL Buna-N
SPRING 302 CRES
PORTS, SIZE & TYPE MS 336565-8
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 275 °F
VIBRATION, RANDOM_
SINEACCELERATION
SHOCK
LIFE, SERVICE CYCLE
SHELF
RELIABILITY LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
MANUFACTURER <u>Circle Seal Controls, Brunswick</u> PART NUMBER <u>869A-8TT/GA, 869A-8TT2 (Gen. Dyn. P/N 7-02337)</u>
DESCRIPTION
QUALIFICATION STATUS Atlas vernier fuel system (General Dynamics
Anollo (Martin Marietta)
Apollo (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 600 psig
CRACKING
BURST
RATED FLOW
LEAKAGE, INTERNAL
EXIERNAL
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY 2024-T4 Al alloy
SEAT/SEAL Buna-N SPRING 302 CRES
SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-8, -8TT2
MOUNTING
ODEDATING TEMPEDATURE DANGE _65 to 100 °F
OPERATING TEMPERATURE RANGE -65 to 180 °F
VIRRATION RANDOM
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 2249B-2MM (Army P/N 11242054)
DESCRIPTION
QUALIFICATION STATUS Nike
PROPELLANT/FLUID
PRESSURE, OPERATING 250 psig
CRACKING
PROOF
BURST FLOW
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL.
EXTERNAL MASS
DIMENOLOGIC
CEAT/CEAT Runa_M
SDRING 202 CRES
MATERIAL, BODY Brass SEAT/SEAL Buna-N SPRING 302 CRES PORTS, SIZE & TYPE 1/8-in. NPT
MOITHUT NC
MOUNTING
ODEDAMING MEMBEDAMIDE DANCE (5 to 260 °E
OPERATING TEMPERATURE RANGE -65 to 260 °F
TI DD A MI DA NIDOM
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 2633A-4TT (GE P/N R3447)
DESCRIPTION
QUALIFICATION STATUS BIOSAT capsule reentry system (General
Electric) PROPELLANT/FLUID
PRESSURE, OPERATING 3000 psig
CRACKING
PRUIT
DONOT
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL_
MASS_DIMENSIONS_
MATERIAL BODY 2024 TA A1 2110T
MATERIAL, BODY 2024-T4 Al alloy
SDRING 302 CRES
SEAT/SEAL Neoprene SPRING 302 CRES PORTS, SIZE & TYPE MS 33656-4
MOUNTING
OPERATING TEMPERATURE RANGE -40 to 300 °F
VIBRATION, RANDOM
OIME
ACCEDERATION
SHOCK
וודה פהסוורה
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
LEAD TIME
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REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 8524T-6BB (Ham. Stan. P/N SVSK85341-1)
DESCRIPTION
QUALIFICATION STATUS Space shuttle ECS (Hamilton Standard)
PROPELLANT/FLUID
PRESSURE, OPERATING 600 psig
CRACKING
FROOF
BURSTRATED_FLOW
LEAKAGE, INTERNAL
Paternal Paternal
MASS_DIMENSIONS_DIMENS
DIMENSIONS
MATERIAL, BODY 303 CRES SEAT/SEAL Silicone SPRING 302 CRES
SPRING 302 CRES
PORTS, SIZE & TYPE AND10050-6
NOT THE THE
MOUNTING
OPERATING TEMPERATURE RANGE70 to 500 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
I TEE GERVIOR
LIFE, SERVICE CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 8538A-16BB-9 (M.M. P/N 47E368-1)
DEGONTANT
DESCRIPTION QUALIFICATION STATUS Viking (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 600 psig CRACKING PROOF BURST
KAIED FLOW
LEAKAGE, INTERNAL EXTERNAL MASS
MASS_DIMENSIONS MATERIAL, BODY 2024-T4 Al alloy SEAT/SEAL Butyl SPRING 302 CRES PORTS, SIZE & TYPE AND10050-16
PORTS, SIZE & TYPE AND10050-16
MOUNTING
OPERATING TEMPERATURE RANGE -40 to 100 °F
VIBRATION, RANDOM_
SINE_ACCELERATION_SHOCK_
LIFE, SERVICE
SHELF RELIABILITY LEAD TIME
COSTREMARKS
DATA SOURCE <u>Aerospace Corporation report (ref. 10)</u>

MANUFACTURER Futurecraft Corporation
PART NUMBER 60616-19A
DESCRIPTION Pneumatic, cartridge
QUALIFICATION STATUS Space shuttle OMS engine (Aerojet)
PROPELLANT/FLUID_ N2 or MMH
PRESSURE, OPERATING 0 to 450 psig
CRACKING 6.0 psig max. (reseat, 1.0 psig min.)
PROOF 900 psig
BURST 1800 psig
RATED FLOW 0.02 to 0.05 lbm/s min. FEOD = 0.135 in. diam
LEAKAGE, INTERNAL
EXTERNAL.
EXTERNAL MASS
DIMENSIONS 0.845 in. by 0.499 in. diam
MATERIAL BODY 3041 CRES
MATERIAL, BODY 304L CRES
SEAT/SEAL Butyl SPRING 302/304 CRES
DODE CITE C SUDE
PORTS, SIZE & TYPE
WAIDIM TATA
MOUNTING
ODEDAMING MEMORDAMIDE DANGE
OPERATING TEMPERATURE RANGE
titppmrov primov
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CACTE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
REMARKS
DATA SOURCE Futurecraft drawing 60616 - 1985

MANUFACTURER Carleton Technologies, Inc.
PART NIMBER 2653-0001-1, 2001-3, 1001-5
DESCRIPTION Partial pressure oxygen sensor
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2
PRESSURE, MAX 5 psia O ₂ partial pressure
MIN O paia
DDOOR
BURST
DIMENSIONS
DIMENSIONS
MATERIAL
DODE CIZE C EVDE
VOLTAGE, INPUT 18 to 32 Vdc
WATTE 1 92 at 20 V/da
WATTS 1.82 at 28 Vdc SIGNAL
ELECTRICAL CONNECTION
MATINETING
ALCH INVY I NICO
110GRT1RO
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2657-0001-1
DESCRIPTION
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_N2
PRESSURE, MAX 3300 psig
MIN 0 psig
EXOCT 400 DOIA
BURST 6600 psig
MASS 0.46 lbm
DIMENSIONS
MATERIAL PORT, SIZE & TYPE
PORT, SIZE & TYPE
VOLTAGE, INPUT 10 Vdc
WAIIS 0.000 at 20 vut
SIGNAL 30 mV
ELECTRICAL CONNECTION
MOINTING
MOUNTING
MOUNTING
FIGURITING
FIGURITING
OPERATING TEMPERATURE RANGE65 to 200 °F
OPERATING TEMPERATURE RANGE -65 to 200 °F
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 200 °F VIBRATION, RANDOM

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2664-0001-11
DESCRIPTION Cabin pressure decay sensor
PART NUMBER 2664-0001-11 DESCRIPTION Cabin pressure decay sensor QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID Air
PRESSURE, MAX 18 psia
min 8 DS1a
FROOF Z4 DSIG
BURST 36 psia
MASS 3.64
DIMENSIONS
MATERIAL
PORT. SIZE & TYPE
VOLTAGE, INPUT 24 to 32 Vdc
WATTS 1.96 at 28 Vdc
SIGNAL
ELECTRICAL CONNECTION
MOTINGING
MOUNTING
ACONT INC
ACONTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2730-0001-1
DESCRIPTION
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID N2
PRESSURE, MAX 20 psig
MIN U psig
BURST 60 psiq
MASS 0.89 1bm
DIMENSIONS
<i>አ</i> ለጥም
PORT, SIZE & TYPE
VOLTAGE, INPUT 10 Vdc
VOLTAGE, INPUT 10 Vdc WATTS 0.066 at 28 Vdc
SIGNAL 30 mV FS
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM_
VIBRATION, RANDOM SINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOM SINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINE
VIBRATION, RANDOM
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2731-0001-5
DESCRIPTION Cabin air pressure
QUALIFICATION STATUS Epace shuttle ARPCS
PROPELLANT/FLUID Air
PRESSURE, MAX 20 psia
MIN O DEIG
TROOF TO DOIG
BURST 80 psia
MASS 0.46 lbm
DIMENSIONS
MATERIAL PORT, SIZE & TYPE
PORT, SIZE & TYPE
VOLTAGE, INPUT 24 to 32 Vdc
WATTS 1.5 at 28 Vdc SIGNAL 0 to 5 Vdc ELECTRICAL CONNECTION
SIGNAL 0 to 5 Vdc
ELECTRICAL CONNECTION_
MOUNTING

OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS External leakage, 0.2 SCCM
OPERATING TEMPERATURE RANGE 35 to 120 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2732-0001-1
DESCRIPTION
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID 02
PRESSURE, MAX 1500 psig
MIN
PROOF 2500 psig
BURST 4500 psig
MASS 0.46 1bm
DIMENSIONS
MATERIAL
PORT, SIZE & TYPE
VOLTAGE, INPUT 10 Vdc
WATTS 0.066 at 28 Vdc
SIGNAL 30 mV FS
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

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MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2733-0001-1
DESCRIPTION
QUALIFICATION STATUS
PROPELLANT/FLUID O2, N2
PRESSURE, MAX 300 psig
M I N
PROOF 450 psig BURST 900 psig
BURST 900 psig
MASS 0.26 lbm
DIMENSIONS
MATERIAL PORT, SIZE & TYPE
FORT, SIZE & TYPE
VOLTAGE, INPUT 10 Vdc WATTS 0.066 at 28 Vdc
SIGNAL 30 mV FS
BIGNAL 30 MV FS
ELECTRICAL CONNECTION
MOTIVETING
MOUNTING
OPERATING TEMPERATURE RANGE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
VIBRATION, RANDOM
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOM
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINEACCELERATIONSHOCK
VIBRATION, RANDOMSINEACCELERATIONSHOCKLIFE, SERVICE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
VIBRATION, RANDOMSINEACCELERATIONSHOCKLIFE, SERVICE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2767-0001-1
DESCRIPTION Pressure gauge
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID 02, air
PRESSURE, MAX 20 psid
MIN 0 psid
PROOF
BURSI
MASS 1.0 1bm DIMENSIONS
MATERIAL
PORT, SIZE & TYPE
VOLTAGE, INPUT
WATTS
SIGNAL_ ELECTRICAL CONNECTION
MOUNTING
11001111110
OPERATING TEMPERATURE RANGE -65 to 120 °F
OPERATING TEMPERATURE RANGE65 to 120 °F
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM_
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION _ SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY _ LEAD TIME
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST
OPERATING TEMPERATURE RANGE65 to 120 °F VIBRATION, RANDOM _ SINE _ ACCELERATION SHOCK _ CYCLE _ CYCLE _ SHELF _ RELIABILITY LEAD TIME _ COST

PART NUMBER CEC 1000 series
DESCRIPTION Sputtered thin film
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, MAX 15 to 10,000 psi
MIN <u>0 psi</u> PROOF <u>2X rated max</u> .
PROOF 2X rated max.
BURST 3X rated max.
MASS 0.31 to 0.34 lbm (except - 06, 0.50 lbm)
DIMENSIONS 2.40-in. body by 1.01 in. diam (6.10 cm by 2.56 cm
diam) except -06
MATERIAL 17-4PH CRES
PORT, SIZE & TYPE MS-33656-4
VOLTAGE, INPUT
WATTS SIGNAL 20 mV (cycont -06 15 mV)
SIGNAL 30 mV (except -06, 15 mV) ELECTRICAL CONNECTION PT1H-10-6P (101) or option
ELECTRICAL CONNECTION FITH-10-6F (101) OF OPETON
MOUNTING
PIOUNTING
OPERATING TEMPERATURE RANGE -420 to 650 °F (depending on model)
THEREALLING LEMEGRALUKE RANGE THAT LO DATE E LUMBUMUU OH MICHALL
OPERATING TEMPERATURE RANGE -420 to 630 F (depending on model)
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models)
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz)
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09)
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09)
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical connection, vent port
VIBRATION, RANDOM Natural frequency = 80 kHz (for most models) SINE 35g (10 to 2000 Hz) ACCELERATION SHOCK 100g for 11 ms (8 ms for -09) LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS Options include lead wire or PCSOGE-10-6S(SR) electrical

MANUFACTURER CEC Instruments, Transamerica Delaval
PART NUMBER CEC 2200 A/G
DESCRIPTION Diffused semiconductor type
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, MAX 15 to 6000 psi
MIN 0 psi
PROOF 2X rated max.
BURST 3X rated max.
MASS 0.38 lbm
DIMENSIONS 3.87 in. (less connect) by 1.01 in. diam (9.81 cm by 2.57 cm diam)
MATERIAL 17-4PH CRES
PORT, SIZE & TYPE 1/4-18 NPT male
VOLTAGE, INPUT
WATTE
SIGNAL 40 mV full range
ELECTRICAL CONNECTION PT1H-10-6P
MOTINITING
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 250 °F
VIBRATION, RANDOM
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 35g peak at 5 to 2000 Hz ACCELERATION 100g SHOCK 1000g half sine wave pulse for 1 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER CEC Instruments, Transamerica Delaval
PART NUMBER CEC 3000 A/G/S
DESCRIPTION Sputtered thin-film type
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, MAX 15 to 6000 psi
MIN 0 psi
PROOF 2X rated max.
BURST 7000 psi
MASS 0.31 lbm DIMENSIONS 3.66 in. (less connector) by 1.01 in. diam (9.30 by
2.56 cm)
MATERIAL 17-4PH and 15-7Mo CRES
PORT, SIZE & TYPE MS 33656-4
VOLTAGE, INPUT
WATTS
SIGNAL 30 mV typical full range
ELECTRICAL CONNECTION PT1H-10-6P (101)
MOUNTING
OPERATING TEMPERATURE RANGE65 to 300 °F
VIBRATION, RANDOM
SINE 35g peak at 5 to 2000 Hz
ACCELERATION
SHOCK 1000g half sine wave pulse for 1 ms
TITE ATTITUTE TO COO I was to describe
LIFE, SERVICE 13,000 hr steady state
CYCLE
SHELF_
RELIABILITY
LEAD TIME
REMARKS
REMARKS
DATA SOURCE CEC product data sheet - 1986

MANUFACTURER CEC Instruments, Transamerica Delaval
PART NUMBER CEC 3300 A/G/S
DESCRIPTION Sputtered thin-film type QUALIFICATION STATUS
QUALIFICATION STATOS
PROPELLANT/FLUID
PRESSURE, MAX 15 to 6000 psi
MIN 0 psi PROOF 2X rated max.
BURST 3X rated max.
MASS 0.47 1bm
DIMENSIONS 4.72 in (less connector) by 1.01 in. diam (12.00 cm by
2.56 cm diam)
MATERIAL 17-4PH (and 15-7Mo below 30 psi) CRES
PORT, SIZE & TYPE MS 33656-4
VOLTAGE, INPUTWATTS
SIGNAL 5.0 Vdc full range; 2 mA
ELECTRICAL CONNECTION PT1H-10-6P (101) (Bendix)
·
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 250 °F
OT DIGITIO THE DIGITORY TO THE BOOK TO THE
VIBRATION, RANDOM
SINE 35g peak at 5 tc 2000 Hz
ACCELERATION 100g
SHOCK 100g half sine wave pulse of 11 ms
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE CEC product data sheet - 1986
DATA BOOKEE CEC Product data sheet - 1906

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 41SG51-1, -2
DESCRIPTION Strain gage pressure transducer
QUALIFICATION STATUS Space shuttle (Rockwell)
PROPELLANT/FLUID H2, O2
PRESSURE, MAX 1200 for -1, 400 psia for -2
MIN 0 psia
PROOF 1800 for -1, 600 psia for -2
BURST 3600 for -1, 1200 psia for -2
MASS 0.44 lbm
DIMENSIONS 1.25 in. diam by 3.00 in. less port and connections
MATERIAL
PORT, SIZE & TYPE MS 24385-4E
VOLTAGE, INPUT 24±0.024 Vdc
WATTS
SIGNAL 0 to 48 mV
ELECTRICAL CONNECTION MSFC 40M39569 (Deutsch DBA51H-10-6PN)
MOUNTING
OPERATING TEMPERATURE RANGE -125 to 225 °F
OPERATING TEMPERATURE RANGE -125 to 225 °F
STEPPARTOIT PAIDOM
VIBRATION, RANDOM
VIBRATION, RANDOM SINE
VIBRATION, RANDOM SINE ACCELERATION
VIBRATION, RANDOM SINE
VIBRATION, RANDOM SINE ACCELERATION
VIBRATION, RANDOM SINE ACCELERATION SHOCK
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
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VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Consolidated Controls Corporation PART NUMBER 41SG78-7 DESCRIPTION QUALIFICATION STATUS Space shuttle RCS (Marquardt) PROPELLANT/FLUID NTO, MMH, He
QUALIFICATION STATUS Space shuttle RCS (Marguardt)
PROPELLANT/FLUID NTO, MMH, He
PROPELLANT/FLUID NTO, MMH, He
PRESSURE, MAX 200 psia
MIN 0 psia PROOF 3000 psia
PROOF 3000 PS1a
BURST 10,000 psia MASS 0.4 lbm
DIMENSIONS 2.27 in. by 1.00 in. diam plus base
MATERIAL
PORT, SIZE & TYPE At mount
VOLTAGE, INPUT
WATTS
WATTS SIGNAL 300 mV/V sensitivity; 1000 Ω FINDER ICAL CONNECTION MP572 0206 0202 load wires
ELECTRICAL CONNECTION MP572-0306-0003 lead wires
MOUNTING Four 0.205-indiam holes at 0.45 by 1.375-in. flange
mount
ADDINGTRO GENDEDAGIDE DARCE OA 🛌 OAA OE
OPERATING TEMPERATURE RANGE 30 to 300 °F
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOM SINE ACCELERATION SHOCK
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 41SG85-21 to -75
DESCRIPTION
QUALIFICATION STATUS SSME (Rocketdyne)
PROPELLANT/FLUID
PROPELLANT/FLUID
PRESSURE, MAX 300 to 9500 psia
MIN 0 psia PROOF 150 percent of max. BURST 300 percent of max. (20,000 psi max.)
PROOF 150 percent of max.
BURST 300 percent of max. (20,000 ps1 max.)
MASS_ DIMENSIONS_ 3.500 by 1.62 by 2.25 in.
MATERIAL
PORT, SIZE & TYPE At mount
VOLIAGE, INPUI
WAITS
SIGNAL 1500 Ω, 3.0 mV/V sensitivity
ELECTRICAL CONNECTION RES1231-E100 5N (2 required)
MOUNTING Flange; 0.28-indiam holes EQ SP on 1.50-indiam BC
HOONTING TIANGE, 0:20 In: GIAM HOTES EQ BE ON 1:30-IN: GIAM DC
OPERATING TEMPERATURE RANGE -65 to 165 °F compensated
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
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VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

PART NUMBER 41SG86-21,-22,-31,-32,-41,-42
DECOLUMNO
DESCRIPTION
QUALIFICATION STATUS Space shuttle (Rocketdyne)
PROPELLANT/FLUID
PRESSURE, MAX 4000 psia
MIN 0 psia PROOF 6000 psia
PROOF 6000 psia
BURST 12,000 psia
MASS
DIMENSIONS 3.500 by 1.650 by 2.30 in.
MATERIAL
PORT, SIZE & TYPE At mount
VOLTAGE, INPUT
WATTS
SIGNAL 1500 Ω, 3.0 mV/V sensitivity
ELECTRICAL CONNECTION RES1231-E1005N (2 required)
MOUNTING Flange, four 0.281-in. holes EQ SP on 1.500-in. BC
OPERATING TEMPERATURE RANGE 10 to 270 °F compensated VIBRATION, RANDOM SINE ACCELERATION
SHOCK
SHOCK
SHOCK
SHOCK
SHOCK LIFE, SERVICE CYCLE
LIFE, SERVICE
LIFE, SERVICE CYCLE
LIFE, SERVICE CYCLE SHELF
LIFE, SERVICE CYCLE SHELF RELIABILITY
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Consolidated Controls Corporation
PART NUMBER 41SG144 series
DESCRIPTION Strain gage type
QUALIFICATION STATUS Peacekeeper
PROPELLANT/FLUID
DDECGIDE WAY 200 to 5000 pain
PRESSURE, MAX 300 to 5000 psia MIN 0 psia
PPOOF 150 percent of may
PROOF 150 percent of max. BURST 200 percent of max. (5000 psia min.)
MACC
DIMENSIONS 5.12 in. max. by 1.28 in. diam
MATERIAL
PORT, SIZE & TYPE MS 33656E4
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL
ELECTRICAL CONNECTION MIL-C-38999 series IV
WATER TAXA
MOUNTING
OPERATING TEMPERATURE RANGE -30 to 200 °F compensated
OF DIGITINO TENTENCE IGNOE GOVERNO
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CICLE
9UEDE
KEDIADIDITI
LEAD TIME
COST
REMARKS
REMARKS

VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST PERMARKS	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY	
VIBRATION, RANDOM	
VIBRATION, RANDOM	
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE	
VIBRATION, RANDOMSINEACCELERATION	
VIBRATION, RANDOMSINEACCELERATION	
VIBRATION, RANDOM_	
OFFICITING INVESTIGATIONS NAMED -20 CO SOO I COMPANISACED	
OPERATING TEMPERATURE RANGE -30 to 200 °F compensated	
1.000-indiam BC	
MOUNTING Three-bolt flange; 0.204-indiam holes EQ SP on	
ELECTRICAL CONNECTION MIL-C-38999 series IV	
SIGNAL 0 to 5 Vdc; 50-kΩ load; 1000-Ω max. impedance	
WATTS	
VOLTAGE, INPUT 28±4 Vdc	
MATERIAL PORT, SIZE & TYPE Special 0.394-indiam plug at mount	
MA DEED TAT	
DIMENSIONS 5.42 in. max. by 1.85 by 1.35 in.	
MASS 0.63 lbm max.	
PUDOM 5000 psid	
MIN 0 psia	
PRESSURE, MAX 2500 psia	
PROPELLANT/FLUID	
QUALIFICATION STATUS Peacekeeper (Hercules)	
PART NUMBER 41SG149-2500Al DESCRIPTION Strain gage type QUALIFICATION STATUS Peacekeeper (Hercules)	

MANUFACTUPER Consolidated Controls Corporation
PART NUMBE. 41SG155-1
DESCRIPTION Strain gage type
QUALIFICATION STATUS Peacekeeper (Hercules)
PROPELLANT/FLUID
PRESSURE, MAX 3500 psia
MIN 0 psia PROOF 5250 psia
PROOF 5250 psia
BURST 7000 psia
MASS 0.56 lbm
DIMENSIONS 4.92 in. max. by 1.28 in. diam
MATERIAL
PORT, SIZE & TYPE MS 33656E4
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5 Vdc; 1000-Ω impedance
ELECTRICAL CONNECTION MIL-C-38999 series IV
MOUNTING
MOONTING
ODEDATING TEMPERATURE DANCE -20 to 200 °F compansated
OPERATING TEMPERATURE RANGE -30 to 200 °F compensated
VIBRATION, RANDOM
VIBRATION, RANDOM SINE
VIBRATION, RANDOM SINE ACCELERATION
VIBRATION, RANDOM SINE
VIBRATION, RANDOM SINE ACCELERATION
VIBRATION, RANDOM SINE ACCELERATION SHOCK
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
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VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Consolidated Controls Corporation PART NUMBER 41SG156-1700A1
DESCRIPTION Strain gage type
QUALIFICATION STATUS Peacekeeper (Hercules)
PROPELLANT/FLUID
PRESSURE, MAX 1700 psia MIN 0 psia
MIN 0 psia
PROOF 2550 psia
PROOF 2550 psia BURST 5000 psia
MASS 0.56 lbm
DIMENSIONS 4.94 in. max. by 1.28 in. diam
MATERIAL
PORT, SIZE & TYPE MS 33656E2
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5 Vdc; 1000-Ω max. impedance
ELECTRICAL CONNECTION MIL-C-38999 series IV
MOUNTING
OPERATING TEMPERATURE RANGE -30 to 200 °F compensated
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
ACCELERATION
VIBRATION, RANDOMSINE
ACCELERATION
ACCELERATIONSHOCK
ACCELERATION
ACCELERATION SHOCK LIFE, SERVICE CYCLE
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Consolidated Controls Corporation PART NUMBER 41SG156-3500A1, -3500A2
DESCRIPTION Strain gage type
QUALIFICATION STATUS Peacekeeper (Hercules)
PROPELLANT/FLUID
PRESSURE, MAX 3500 psia MIN 0 psia PROOF 5250 psia RUPST 7000 psia
MIN 0 psia
PROOF 5250 psia
DOKBI 7000 PSIE
MASS 0.56 lbm
DIMENSIONS 4.94 in. max by 1.28 in. diam
MATERIAL
DODE CIZE C TYDE MC 22656E2
VOLTAGE INDITE 28+4 Vdc
פדיית או
SIGNAL 0 to 5 Vdc; 1000-Ω max. impedance
ELECTRICAL CONNECTION MIL-C-38999 series IV
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
ACCELERATION
VIBRATION, RANDOMSINE
ACCELERATION
ACCELERATIONSHOCK
ACCELERATION
ACCELERATION SHOCK LIFE, SERVICE CYCLE
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
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ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Consolidated Controls Corporation
PART NUMBER (NAVORD) 3064422
DESCRIPTION
QUALIFICATION STATUS PBCS, Trident
PROPELLANT/FLUID
DDECGINE MAY 150 maio
PRESSURE, MAX 150 psia MIN 0 psia PROOF
DPOOF
PROOF BURST
MASS 1.1 lbm
DIMENSIONS 4.25 in. (less port and connections) by 2.25 in. diam
(less mount)
MATERIAL
PORT, SIZE & TYPE MS 33656E4 (modified)
VOLTAGE, INPUT
WATTS
SIGNAL
ELECTRICAL CONNECTION Special
MOINTING Standoff pad: two 0 266-in bolds at 0 750 in
MOUNTING Standoff pad; two 0.266-in. holes at 0.750 in.
FROMITING Standoll pad, two 0.200-in. noies at 0.750 in.
MONITING Beautoff pau, two 0.200-in. notes at 0.750 in.
OPERATING TEMPERATURE RANGE
OPERATING TEMPERATURE RANGE_
OPERATING TEMPERATURE RANGE
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Paine Corporation
PART NUMBER 210-75-XXX series
DESCRIPTION
QUALIFICATION STATUS
PROPELLANT/FLUID Any fluid compatible w/17-4PH CRES
PRESSURE, MAX 75 to 1500 psi
MIN_0 psi
PROOF Up to 150 percent of max. BURST 300 percent of max.
MASS
DIMENSIONS 1.92 in. less electrical connections by 1.004-in. hex
(4.88 by 2.54 cm) MATERIAL 17-4PH CRES
PORT, SIZE & TYPE MS 33649-4
VOLTAGE, INPUT 10 Vdc WATTS
SIGNAL
ELECTRICAL CONNECTION Mates w/MS 3115-10-6S or solder terminal
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE 20g
ACCELERATION 20g
SHOCK 30g
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Paine product data sheet - 1986

MANUFACTURER Statham Division
PART NUMBER PA732TC
DESCRIPTION Unbonded strain gage type
QUALIFICATION STATUS
PROPELLANT/FLUID
DDEGGTDE 12312 C to COOK and a
PRESSURE, MAX 5 to 5000 psia
MIN 0 psia PROOF 7500 psia
BURST
MASS 0.44 lbm (0.20 kg) PIMENSIONS 3.61 in (loss port and connections) by 1.14 in diam
DIMENSIONS 2.61 in. (less port and connections) by 1.14 in. diam
(6.63 cm by 2.90 cm diam)
MATERIAL MATERIAL
PORT, SIZE & TYPE MS 33656-G4 (two for differential pressure
versions)
VOLTAGE, INPUT 7 V
WATTS
SIGNAL 3 mV/V sensitivity
ELECTRICAL CONNECTION Mates w/Bendix PC06-8-4S
MOUNTING
OPERATING TEMPERATURE RANGE 75 to 600 °F compensated (24 to
315 °C)
VIBRATION, RANDOM_
GINE
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE
CYCLE SHELF
CYCLE SHELF RELIABILITY
CYCLE SHELF RELIABILITY LEAD TIME
CYCLE SHELF RELIABILITY LEAD TIME COST
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions:
CYCLE SHELF RELIABILITY LEAD TIME COST
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions:
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions:
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions:
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions: specifications above necessary for PA732TC only
CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS PL732TC and PM732TC differential pressure gage versions:

MANUFACTURER Statham Division
PART NUMBER PA4088
DESCRIPTION Thin-film strain gage; high performance
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, MAX 15 to 5000 psia MIN 0 psia
MIN U DS1a
MIN 0 psia PROOF 7500 psia BURST
MASS 0.53 lbm (0.24 kg) DIMENSIONS 1.25 in. diam (3.18 cm diam)
DIFEMOTOND 1:25 III. GIGH (5:10 CH GIGH)
MATERIAL
PORT, SIZE & TYPE MS 33656-E4
VALUE TRIBUTE OF VALUE
SIGNAL 5 V
ELECTRICAL CONNECTION Mates w/Bendix PTO6-10-6S
MOUNTING
OPERATING TEMPERATURE RANGE 0 to 200 °F compensated (-17 to 93 °C)
VIBRATION, RANDOM
VIBRATION, RANDOM
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOM
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 2-201 DESCRIPTION Potentiometric, capsule sensor
DESCRIPTION Potentiometric, capsule sensor
QUALIFICATION STATUS
PROPELLANT/FLUID
PRESSURE, MAX 5 to 350 psig/psia
PRESSURE, MAX 5 to 350 psig/psia MIN 0 psig/psia PROOF 150 percent of max. BURST
PROOF 150 percent of max.
BURST
MASS 0.19 lbm (0.09 kg)
DIMENSIONS 1.00 in. diam by 2.27 in. plus connections (2.54 by
5.77 cm)
MATERIAL NiSpan-C. 17-7PH CRES
PORT, SIZE & TYPE MS 33656-4 or optional
VOLTAGE, INPUT
SIGNAT: 500 to 10,000 0
ELECTRICAL CONNECTION PT1H-8-4P
MOUNTING
MOUNTING
OPERATING TEMPERATURE RANGE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE 20g to 65g at 55 to 2000 Hz
SHOCK 100g for 11 ms
SHOCK TOUG FOR IT HIS
time amoutae
LIFE, SERVICE
CICLE
9uert
RELIABILITY
LEAD TIME
COST
REMARKS Options available; welded construction
DATA SOURCE Systron Donner product data sheet - 1986

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 2-400
DESCRIPTION Potentiometric, helical Bourdon tube
QUALIFICATION STATUS
PROPELLANT/FLUID
ENOTED LANGE TO LO
PRESSURE, MAX 300 to 5000 psia/psig
MIN 0 psia/psig
PROOF 150 percent of max.
BURST 200 percent of max.
MASS 0.25 lbm (0.11 kg)
DIMENSIONS 2.812 in. by 1.125 in. diam (7.14 by 2.86 cm)
MATERIAL NiSpan-C, 17-7PH CRES
PORT, SIZE & TYPE MS 33656E2 or optional
VOLTAGE, INPUT
WATTS
STGNAL 500 to 10,000 Ω
ELECTRICAL CONNECTION MS 3116-8-45
MOUNTING Two-hole mounting base optional
OPERATING TEMPERATURE RANGE -58 to 302 °F (-50 to 150 °C)
OPERATING TEMPERATURE RANGE -30 to 302 T (-30 to 130 C)
VIBRATION, RANDOM
SINE 35g at 55 to 2000 Hz for ±1 percent FS error
ACCELERATION 30q
SPOCK 50g for 11 ms half sine wave
LIFE, SERVICE 100,000 full cycles; 1,000,000 dither cycles
CYCLE_
SHELF_
RELIABILITY
LEAD TIME
COST REMARKS Optional differential pressure models, segmented switches,
other
Other
DATA SOURCE Systron Donner product data sheet - 1986

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 4-901
PART NUMBER 4-901 DESCRIPTION Solid state strain gage
QUALIFICATION STATUS
PROPELLANT/FLUID Compatible with 17-7PH CRES
PRESSURE, MAX 200 to 5000 psia/psig
MIN 0 psia/psig
PROOF 200 percent of max.
BURST 500 percent or max.
MASS 0.38 1Dm (0.17 kg)
DIMENSIONS 1.12 in. hex by 3.0 in. plus fittings (2.84 by 7.62 cm)
MATERIAL 17-7PH CRES
PORT, SIZE & TYPE MS 33656-4 modified
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5±0.05 Vdc at FS
SIGNAL 0 to 5±0.05 Vdc at FS ELECTRICAL CONNECTION PT1H-8-4P
MOUNTING
OPERATING TEMPERATURE RANGE58 to 248 °F (-50 to 120 °C)
VIBRATION, RANDOM
VIBRATION, RANDOM SINE 50q to 2000 Hz
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST REMARKS
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 4-910
DESCRIPTION Solid state strain gage
QUALIFICATION STATUS
DRADUTT TATE (TITTED A
PROPELLANT/FLUID Compatible with 17-7PH CRES
DDECTION MAY 16 to 0000 main/maig
PRESSURE, MAX 16 to 2000 psia/psig MIN 0 psia/psig
DROOF 500 porgont of may
PROOF 500 percent of max. BURST 1000 percent of max.
MASS 0.75 lbm (0.34 kg)
DIMENSIONS 4.85 in. by 1.38 in. diam (12.32 by 3.51 cm)
DIFMADIONO 4.03 III. Dy 1.30 III. Gram (12.32 by 3.31 Cm)
MATERIAL
PORT, SIZE & TYPE MS 33656E4
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5±0.05 Vdc at FS
ELECTRICAL CONNECTION PT1H-8-4P
MOUNTING
OPERATING TEMPERATURE RANGE -58 to 248 °F (-50 to 120 °C)
VIBRATION, RANDOM
VIBRATION, RANDOM SINE 50g to 2000 Hz
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM SINE 50g to 2000 Hz
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 4-930
DESCRIPTION Differential pressure, strain-gaged diaphragm
QUALIFICATION STATUS
PROPELLANT/FLUID Compatible with 17-7PH CRES
DDECCIDE MAY 15 to 100 moid
PRESSURE, MAX 15 +o 100 psid MIN 0 psid
DPOOF
BURST
MASS
DIMENSIONS 4.24 in. by 1.50 in. diam (10.80 by 3.81 cm)
21. 21. 21. 27 2. 22. 27 2. 22. 27 2
MATERIAL 17-7PH CRES
PORT, SIZE & TYPE MS 33656-E4 modified and -E2
VOLTAGE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5±0.5 Vdc at FC
ELECTRICAL CONNECTION PT1H-8-4P
MOUNTING
OPERATING TEMPERATURE BANGE -58 to 248 °F (-50 to 120 °C)
OPFRATING TEMPERATURE RANGE -58 to 248 °F (-50 to 120 °C)
VIBRATION, RANDOM
VIBRATION, RANDOM SINE 50g peak to 2000 Hz
VIBRATION, RANDOMSINE50g peak to 2000 Hz ACCELERATION 100g
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS
VIBRATION, RANDOM SINE 50g peak to 2000 Hz ACCELERATION 100g SHOCK 100g for 11 ms LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST DEMARKS

MANUFACTURER Systron Donner, Edcliff
PART NUMBER 4-931
DESCRIPTION Differential pressure, strain-gaged diaphragm
QUALIFICATION STATUS
DDODET I ANTI/ET IIID
PROPELLANT/FLUID
PRESSURE, MAX 15 to 100 psia
MIN 0 psia
PROOF_ 1.5X max.
BURST 3X max.
MASS 1.0 lbm (0.45 kg)
DIMENSIONS 5.31 in. by 2.00 in. diam (13.49 by 5.08 cm)
MATERIAL 17-7PH CRES
PORT, SIZE & TYPE MS 33657S3 and MS 33657S4
VOLTAJE, INPUT 28±4 Vdc
WATTS
SIGNAL 0 to 5±0.5 Vdc at FS
SIGNAL 0 to 5±0.5 Vdc at FS ELECTRICAL CONNECTION PT1H-10-6P
MOUNTING
OPERATING TEMPERATURE RANGE -58 to 248 °F (-50 to 120 °C)
VIBRATION, RANDOM
SINE 50g peak to 2000 Hz
ACCELERATION 100g
SHOCK 100g for 11 ms
TIPE CEDVICE
LIFE, SERVICECYCLE
SHELF
RELIABILITY
LEAD TIME
COST .
REMARKS
DATA SOURCE Systron Donner product data sheet - 1986
Data booker systim bounct product data sheet 1700

MANUFACTURER Aerodyne Controls Corporation
PART NUMBER 3895
DESCRIPTION Miniature, adjustable
QUALIFICATION STATUS DOD flight qualified
PROPELLANT/FLUID
nnmagine nerree 2 to 200 maig
PRESSURE, RELIEF 3 to 200 psig RESET 90 percent of relief setting
RATED FLOW LEAKAGE, INTERNAL
MASS 0.56 lbm
DIMENSIONS 0.72 in. by 0.44 in. hex
DITEMOTORO 0.72 III. Dy V.II III. IIOI
MATERIAL, BODY CRES
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE 1/4-28 UNF-3A per MIL-S-7742
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 165 °F
TITDD A D TALL DA LIDALE
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
BROCK
LIFE, SERVICE
73V/71 D
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Proof pressure, 350 psig; burst pressure, 450 psig

DATA SOURCE Aerodyne product data sheet - 1985

MANUFACTURER Carleton Technologies, Inc.
DADO INDICONO OZEE NAMI E
DESCRIPTION Cabin relief, motor driven
QUALIFICATION STATUS Space shuttle ARPCS
DRODUTT TAXIN (TITTED A AT
PROPELLANT/FLUID O2, N2
paracine ariter 16 mai
PRESSURE, RELIEF 16 psi RESET 15.5 psi
PARED FIOW 0 to 150 lbm/br at 16 psig
RATED FLOW 0 to 150 lbm/hr at 16 psig
LEAKAGE, INTERNAL 15 SCCM at 15 psid
MASS 2.20 1bm
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAT
SEAT/SEAL_
PORTS, SIZE & TYPE
MOUNTING
OPERATING TEMPERATURE RANGE65 to 200 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
V:
CONTROLLE
LEAD TIME
COST
REMARKS 18 to 32 Vdc motor - 6.7 W running, 32.2 W stalled
(w/position indicator)

DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 3111-0001-15 (model number R217-050)
DESCRIPTION
OTAT TET CAMTON CMAMIC Packet drme program
QUALIFICATION STATUS Rocketdyne program
PROPELLANT/FLUID He
4 21/3 41111 21 21 21 21 21 21 21 21 21 21 21 21
PRESSURE, RELIEF 320 to 330 psig
RESET 300 psia min.
RATED FLOW 0.19 lbm/s at 350 psig max.
LEAKAGE, INTERNAL 500 SCCM
MASS DIMENSIONS 2 590 in by 2 150 in diam
DIMENSIONS 3.580 in. by 3.150 in. diam
MATERIAL, BODY 304L, 304 CRES
SEAT/SEAL
SPRING
PORTS, SIZE & TYPE 5/8-in. tube
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
2100
ACCELERATION
SHOCK
TIPE CEDUTCE
LIFE, SERVICE
CYCLE_ SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS

DATA SOURCE <u>Carleton drawing 3111-0001-15 - 1985</u>

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER D500T series (Gen. Dyn. P/N 55-02957)
DESCRIPTION
OTTAL TILL CAME ON CHARTIC Control (Control Description)
QUALIFICATION STATUS Centaur (General Dynamics)
PROPELLANT/FLUID
PRESSURE, RELIEF 150 psig
RESET
RATED FLOW LEAKAGE, INTERNAL
LEAKAGE, INTERNAL
MASS DIMENSIONS
MATERIAL RODY 303 CRES
MATERIAL, BODY 303 CRES SEAT/SEAL Various SPRING 302 CRES
SPRING 302 CRES
SPRING 302 CRES PORTS, SIZE & TYPE Various
MOUNTING
OPERATING TEMPERATURE RANGE Various
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE_
OUTPT.
RELIABILITY
LEAD TIMECOST
REMARKS

DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P13-533 DESCRIPTION
QUALIFICATION STATUS Apollo (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, RELIEF 15 psi RESET
LEAKAGE, INTERNAL
MASSDIMENSIONS
MATERIAL, BODY 2024-T351 SEAT/SEAL Buna-N SPRING 17-7PH CRES PORTS, SIZE & TYPE MS 33656-16
PORTS, SIZE & TYPE MS 33656-16
MOUNTING
CPERATING TEMPERATURE RANGE 70 to 165 °F
VIBRATION, RANDOM
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE SHELF
RELIABILITY
LEAD TIME_
COSTREMARKS
17D1 D 17C1 W

DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER P27-673 (M.M. P/N SK808D04206-001)
PART NUMBER P27-673 (M.M. P/N SK808D04206-001)
DESCRIPTION
Jayoutu
QUALITICATION STATUS Viking (Martin Marietta)
QUALI ICATION STATUS VIKING (MALCIN MALIECCA)
PROPELLANT/FISID_H2
PRESSURE, RELIEF 150 psig
DECET DECET
RESET
KM LED E LAW
LEAKAGE, INTERNAL_
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
MATERIAL, BODI ZUZY-ISSI AT GILOY
SEAT/SEAL TETION
SEAT/SEAL Teflon SPRING 17-7PH CRES
PORTS, SIZE & TYPE
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 150 °F
VIBRATION, RANDOM_
CINE
SINE
ACCELERATION
SH OCK
LIFE SERVICE
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P68-344
ESCRIPTION
QUALIFICATION STATUS Apollo cryopump booster (Martin Marietta)
ROPELLANT/FLUID
PRESSURE, RELIEF 250 psi
RESET
RATED FLOW
RATED FLOW LEAKAGE, INTERNAL
MASS
T MENCTONS
ANTEDIAL DODY 202 CDEC
GEAT/CEAL Toflon
SDRING 302 CDFS
SEAT/SEAL Teflon SPRING 302 CRES PORTS, SIZE & TYPE AND10050-6
MOUNTING
OPERATING TEMPERATURE RANGE300 to 155 °F VIBRATION, RANDOM SINE ACCELERATION
SHOCK
LIFE, SERVICE CYCLE CHELE
SHELF
RELIABILITY
LEAD TIME
COCT
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 520T1-8D-175 (Gen. Dyn. P/N 57-02913)
DESCRIPTION
QUALIFICATION STATUS Atlas (General Dynamics)
PROPELLANT/FLUID H ₂ O ₂
DESCRIPE DELLER 400 poid
PRESSURE, RELIEF 400 psig
RESETRATED_FLOW
LEAKAGE, INTERNAL_
MASS
DIMENSIONS
MATERIAL, BODY 316 CRES SEAT/SEAL Teflon
SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-8 flare cone removed
16ATD TO TAKA
MOUNTING
OPERATING TEMPERATURE RANGE -320 to 400 °F
OPERATING TEMPERATURE RANGE -320 to 400 °F
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOMSINEACCELERATIONSHOCK
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
VIBRATION, RANDOM
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 524T-2MP-7
DESCRIPTION
QUALIFICATION STATUS Apollo (Martin Marietta)
DDODET I AND JET III D
PROPELLANT/FLUID_
PRESSURE, RELIEF 200 psig
RESET
RATED FLOW LEAKAGE, INTERNAL
LEAKAGE, INTERNAL
MASS
MASS DIMENSIONS
MATERIAL, BODY 303 CRES
MATERIAL, DUDY 303 CRES
SEAT/SEAL S111Cone
SEAT/SEAL Silicone SPRING 302 CRES
PORTS, SIZE & TYPE 1/4-in. NPT
MOUNTING
OPERATING TEMPERATURE RANGE -70 to 500 °F
OFERRITING TERRETORE RANGE -70 CO JOU I
VI DUATION DANDON
VIBRATION, RANDOM_
GIND
MCCEDENIA TON
SHOCK
LIFE, SERVICE
CYCLE
CYCLE SHELE
SHELF RELIABILITY
MINITAL TILL
DILLO III
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 532T-:D-5 (VAR-1)
DESCRIPTION
QUALIFICATION STATUS Viking VTS telescope (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, RELIEF 150 psi
RESET_
RATED FLOW
LEAKAGE, INTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 303 CRES
SEAT/SEAL_Viton
SPRING 302 CRES
PORTS, SIZE & TYPE MS 33656-5 w/flare cone removed
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 400 °F
VIBRATION, RANDOM
OTHE .
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE SHELF
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
ee

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 559A-1M-X DESCRIPTION
QUALIFICATION STATUS Mercury life support (AiResearch)
PROPELLANT/FLUID_O2
PRESSURE, RELIEF 400 psig RESET
LEAKAGE, INTERNAL
MASSDIMENSIONS
MATERIAL, BODY 2024-T4 Al alloy SEAT/SEAL Buna-N SPRING 302 CRES PORTS, SIZE & TYPE 1/8-in. NPT
MOUNTING
OPERATING TEMPERATURE RANGE65 to 275 °F VIBRATION, RANDOM
LIFE, SERVICE CYCLE SHELE
SHELF_ RELIABILITY LEAD TIME COST
REMARKS

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 559B-X (Army P/N 11241398)
DESCRIPTION
QUALIFICATION STATUS Nike-A
PROPELLANT/FLUID
PRESSURE, RELIEF 150 psig
RESET
RATED FLOW
RATED FLOWLEAKAGE, INTERNAL
MASS
DIMENSIONS
MATERIAL, BODY Brass
SEAT/SEAL Buna-N
SPRING 302 CRES
MATERIAL, BODY_Brass SEAT/SEAL_Buna-N SPRING_302_CRES PORTS, SIZE & TYPE_*Various
MOUNT I NG
OPERATING TEMPERATURE RANGE -40 to 260 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
$C \cap C \cap C$
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick PART NUMBER 559T-6D-18.8 (GE P/N 47B113135P4)
PART NUMBER 559T-6D-18.8 (GE P/N 47B113135P4)
DESCRIPTION
QUALIFICATION STATUS Bio-satellite, capsule relief (GE)
PROPELLANT/FLUID
PRESSURE, RELIEF 150 psig
RESET
EVW T LVIA TO FU TARA
LEAKAGE, INTERNAL
MASS
MASS DIMENSIONS
MATERIAL, BODYSEAT/SEALBuna-NSPRING302_CRES
SEAT/SEAL Buna-N
SPRING 302 CRES PORTS, SIZE & TYPE MS 33656-6 w/flare cone removed
PORTS, SIZE & TYPE MS 33656-6 w/flare cone removed
MOUNTING
OPERATING TEMPERATURE RANGE40 to 250 °F
MANAGE AND
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
7 TOTAL ACTIVITY OF
LIFE, SERVICE
CICLE
SHELF_
REDIABILIT
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

The second se

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 5159T-4TT-155, 5159T-2MP-200
DESCRIPTION
QUALIFICATION STATUS Apollo (Martin Marietta)
DRADBE CALIM /Profits
PROPELLANT/FLUID
DESCRIPE DELINE OCCO
PRESSURE, RELIEF 2500 psi
RESET_
RATED FLOW LEAKAGE, INTERNAL
MASS
MASS DIMENSIONS
DIMENOTORO
MATERIAL, BODY 303 CRES
MATERIAL, BODY 303 CRES SEAT/SEAL Buna-N SPRING 17-7PH CRES
SPRING 17-7PH CRES
PORTS, SIZE & TYPE MS 33656-4 (for 4TT) 1/4-in. NPT (for 2MP)
MOUNTING
OPERATING TEMPERATURE RANGE65 to 275 °F
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
Under
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

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MANUFACTURER Futurecraft Corporation
PART NUMBER 400214
DESCRIPTION Spring loaded, interval piston guide and stop
QUALIFICATION STATUS Minuteman reentry stage (Avco)
PROPELLANT/FLUID
PRESSURE, RELIEF 540±15 psia RESET 475 psia min.
RESET 475 psia min.
RATED FLOW
LEAKAGE, INTERNAL Zero at 450 psia
MASS 0.13 Lbm
DIMENSIONS 2.30 in. by 0.81 in. hex
MATERIAL, BODY 2024-T4 Al alloy, 303 CRES poppet
SEAT/SEAL Fluorosilicone O-ring
CDDING CDEC
PORTS, SIZE & TYPE MS 33656-4 modified
MOUNTING
OPERATING TEMPERATURE RANGE
UTDDIMINU BIIDAN
VIBRATION, RANDOM_
GINE
ACCEPTION
SHOCK
I I TO A ALLIAN
LIFE, SERVICE
CICHE
OHEDP
VERTURE IT I
EEAD TIME
COST
REMARKS Proof pressure, 1200 psia; burst pressure, 2400 psia
DATA SOURCE Futurecraft drawing 400214 - 1985

MANUFACTURER Futurecraft Corporation
PART NUMBER 400233
DESCRIPTION Spring and poppet w/inlet filter
QUALIFICATION STATUS Teal Ruby
PROPELLANT/FLUID_GN2
PRESSURE, RELIEF 75 to 85 psia (60 to 75 psig)
RESET 75 to 85 psia
RATED FLOW
RATED FLOW LEAKAGE, INTERNAL
MASS
DIMENSIONS 4.15 by 2.50 by 1.19 in.
WATER TALL DODG OAT CREE
MATERIAL, BODY 304L CRES
SEAT/SEAL_SPRING_302_CRES
PORTS, SIZE & TYPE 0.250-in. tube (inlet and outlet); 0.028-in.
wall
MOUNTING Two 0.209-indiam holes, 0.940-in. apart
OPERATING TEMPERATURE RANGE22 to 160 °F
TAT DD A DT A ATD A M
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CICLE
RELIABILITY
LEAD TIME
COST
REMARKS Proof pressure, 105 psig; burst pressure, 280 psig; inlet
filter, 30 to 55 μm

DATA SOURCE Futurecraft drawing 400233 - 1985

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-4-00-58-11
DESCRIPTION w/integral relief
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2
PRESSURE, RANGE, INLET 900 to 600 psig
REGILATED 100 psi
OUTLET-LOCKID 100 psi
PROOF. INLET 1875 DS10
PROOF, OUTLET 190 psig BURST, INLET 2500 psig
BURST, INLET 2500 psig
BURST, OUTLET 250 psig
סחקת
PATED FLOW 0 to 50 lbm/br
LEAKAGE, INTERNAL-MAX INLET PRESS 2.0 SCCM
EXTERNAL-MAX INLET PRESS 0.7 SCCM
MASS 2.5 1bm
DIMENSIONS
MATERIAL, BODY_
MATERIAL, BODY SEAT/SEAL
SEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET
OTITE TO
OUTLET_
INTEGRAL RELIEF 125 psi open, 105 psi reseat
INTEGRAL REDIEF 123 psi open, 103 psi teseat
THEFCOAT FITTED
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOMSINE
ACCELERATION
SHOCK
I THE ADDITION
LIFE, SERVICE
SHELF DELIABILITY
RESIRDIBILI
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-4-00-58-13
DESCRIPTION w/integral relief
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_ O2
PRESSURE, RANGE, INLET 1250 to 300 psig
REGULATED 100±10 psig
OUT ET-I OCKID 125 pgi
PROOF, INLET 1875 psig
PROOF, INDEL 1075 psig
PROOF, OUTLET 370 psig BURST, INLET 2500 psig
BURST, OUTLET 490 psig
DROP TION 2 to 75 1bm/bm
RATED FLOW 0 to 75 lbm/hr
LEAKAGE, INTERNAL MAX INLET PRESS 2.0 SCCM at lockup
EXTERNAL-MAX INLET PRESS 0.6 SCCM
MASS 4.70 lbm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF 245 psig, 215 reseat
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM
SINE
A COTT TO A TO A TO A
SHOCK
SHOCK
IIDD CDDUICD
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
COSTREMARKS
COST
COSTREMARKS
COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-4-00-58-15
DESCRIPTION
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2
PRESSURE, RANGE, INLET 900 to 300 psig
REGULATED 100±10 psig
DUTTERT-LOUNDE ZAD DST
PRODE, INLET IX/5 DS10
PROOF, OUTLET 370 psiq BURST, INLET 2500 psiq
BURST, INLET 2500 psig
BURST, OUTLET 490 psig
מסקה
RATED FLOW 0 to 50 lbm/hr
LEAKAGE, INTERNAL MAN INLET PRESS 10 SCCM at lockup
200.001/ 2012-2010-2012-2012-2012-2012-2012-2012
EXTERNAL-MAX INLET PRESS 1.0 SCCM
DIMENSIONS
DIMENSIONS
MATERIAL, BODY_
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET_
OOTDDI
INTEGRAL RELIEF
THTECRAL FILTER
INTEGRAL FILTER MOUNTING
MOONTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
TIT DD A CLOSE D A STOCK
VIBRATION, RANDOMSINE
ACCELERATION
SHOCK
t TDD - ABBUT AB
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COS1
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc. PART NUMBER 1-29-00 DESCRIPTION Diaphragm QUALIFICATION STATUS
PROPELLANT/FLUID GH2 PRESSURE, RANGE, INLET 5000 to 150 psi REGULATED 0.5 to 1.2 psi OUTLET-LOCKUP
PROOF, INLET PROOF, OUTLET BURST, INLET BURST, OUTLFT DROP
RATED FLOW 0.07 SCFN LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS MASS DIMENSIONS 3.50 in. diam by 1.72 in. (8.89 by 4.37 cm)
MATERIAL, BODY
SPRING
OUTLET_AND10050-4 INTEGRAL RELIEF_
INTEGRAL FILTER
OPERATING TEMPERATURE RANGE65 to 160 °F VIBRATION, RANDOM
SHOCK
LIFE, SERVICE SHELF RELIABILITY LEAD TIME
LEAD TIME COST REMARKS
DATA SOURCE Carleton drawing 1-29-00 - 1985

MANUEL CHURED Carleton Weshnelesias Ins
MANUFACTURER Carleton Technologies, Inc. PART NUMBER 1-59-00-3
DESCRIPTION Diaphragm w/relief
QUALIFICATION STATUS
\$0.mm. 100.11.00.
PROPELLANT/FLUID GO2
PRESSURE, RANGE, INLET 1300 to 300 psig
REGULATED 10 psig
OUTLET-LOCKUP
PROOF, INLET
PROOF, OUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW 0.4 lbm/hr min.
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS 3.406 by 2.688 by 2.125 in.
MATERIAL, BODY
SEAT/SEAL
SEA1/SEAU
SPRING
PORTS, SIZE & TYPE, INLET MS 2435-4
101107 0100 0 11107 111001 110 0100 1
OUTLET Outlet and relief same as inlet
INTEGRAL RELIEF 39 psia crack; 30 psia reset, 0.2 lbm/hr at
40 psia
INTEGRAL FILTER
MOUNTING
ODEDAMING MEMBEDAMINE DANGE OF to 105 OF
OPERATING TEMPERATURE RANGE35 to 125 °F
VIBRATION, RANDOM
VIBRATION, RANDOMSINE
VIBRATION, RANDOM SINE ACCELERATION
VIBRATION, RANDOMSINE
VIBRATION, RANDOM
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY LEAD TIME
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY LEAD TIME COST
VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1-59-00-5
DESCRIPTION Diaphragm w/relief
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID GN2 PRESSURE, RANGE, INLET 1800 to 300 psig REGULATED 37 to 43 psig
PRESSURE, RANGE, INLET 1800 to 300 psig
REGULATED 37 to 43 psig
REGULATED 37 to 43 psig OUTLET-LOCKUP 48.0 psig max. PROOF, INLET 2700 psig
PROOF, INLET 2700 PSIG
PROOF, OUTLET
BURST, INLET BURST, OUTLET
STATE TO A CO. COTTLE (200 COCA)
LEAKAGE, INTERNAL-MAX INLET PRESS 1.0 SCC.
EXTERNAL-MAX INLET PRESS 1.8 SCCH
MASS 0.45 lbm (0.2 kg)
DIMENSIONS 3.400 by 3.844 by 2.14 in.
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL
SPRING_
PORTS, SIZE & TYPE, INLET MS 33514E-4 line and relief
OUTLET MS 33514E-4; MS 24385-4C relief
OUILEI MS 33314E-4, MS 24383-4C Terrer
INTEGRAL RELIEF 56 psia crack, 48 psia reset
INTEGRAL REDIEL 30 PSIG CIGCA, 40 PSIG LESEC
INTEGRAL FILTER
MOUNTING Two 8-32 holes at 1.562 in. (3.967 cm)
OPERATING TEMPERATURE RANGE 10 to 125 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
Shelf
KELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton drawing 1-59-00-5 - 1985
Duty Poover carteron drawing 1-23-00-2 - 1302

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2144-0001-31
DESCRIPTION Cabin pressure regulator
DESCRIPTION Cabin pressure regulator QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2, N2 PRESSURE, RANGE, INLET 295 to 90 psig REGULATED 14.7 to 0.2 psia OUTLET-LOCKUP 15.0 psia
PRESSURE, RANGE, INLET 295 to 90 psig
REGULATED 14.7 to 0.2 psia
OUTLET-LOCKUP 15.0 psia PROOF, INLET 443 psiq PROOF, OUTLET 45 psiq BURST, INLET 590 psiq BURST, OUTLET 80 psiq
PROOF, INLET 443 psig
PROOF, OUTLET 45 psig
BURST, INLET 590 psig
BURST, OUTLET 80 psig
DROP
RATED FLOW 0 to 75 lbm/hr
LEAKAGE, INTERNAL-MAX INLET PRESS 7.0 SCCM at lockup
EXTERNAL-MAX INLET PRESS 1.0 SCCM
MASS 6.221 1bm
DIMENICIONIC
MATERIAL, BODY_
MATERIAL, BODY_
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
ALTER TIE
OUTLET
INTEGRAL RELIEF
TAMECIAI EIIMED
INTEGRAL FILTER
MOUNTING
ADEDAGING GENERAGIDE DANGE OF LA 190 OF
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
TIED CEDUTOR
LIFE, SERVICE
SHELF
RELIABILITY
1.8°A11 '1' 1.008'
DOOR TIME
LEAD TIME COST_
COSTREMARKS
COST
COST

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2144-0001-33
DESCRIPTION Cabin pressure regulator QUALIFICATION STATUS Space shuttle ARPCS
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2, N2 PRESSURE, RANGE, INLET 295 to 0 psig
PRESSURE, RANGE, INLET 295 to 0 psig
DDOOF INTER 442 raid
PROOF, INCEL 443 psig
PROOF, OUIDEL 43 psig
OUTLET-LOCKUP 8.3 psia PROOF, INLET 443 psig PROOF, OUTLET 45 psig BURST, INLET 590 psig BURST, OUTLET 60 psig
RATED FLOW 0 to 75 lbm/hr
LEAKAGE, INTERNAL MAX INLET PRESS 7.0 SCCM at lockup
EXTERNAL-MAX INLET PRESS 0.2 SCCM
MASS
DIMENO I AND
MATERIAL, BODY
MATERIAL, BODY
MATERIAL, BODY SEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
THITECOMI DELICE
INTEGRAL RELIEF
TMT FCPAT FILTER
INTEGRAL FILTER MOUNTING
TOOKIIKO
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RESIABILIT
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987
DAIA SOUKEE Carteton product data sneet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2362-0001-11 DESCRIPTION Water tank pressure regulator w/relief
DESCRIPTION Water tank pressure regulator w/relief
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_N2 PRESSURE, RANGE, INLET_295 to 0 psig
PRESSURE, RANGE, INLET 295 to 0 psig
REGULATED 16.25±0.75 psig
OUTLET-LOCKUP 17 psig
PROOF, INLEY 443 DS10
PROOF, OUTLET 27 psig
BURST, INLET 590 psig
DROP
LEAKAGE, INTERNAL MAX INLET PRESS 2 SCCM at 215 psig
DEALAGE, INTERNAL PROSTREE TREES 2 SCOT &C 213 psig
EXTERNAL-MAX INLET PRESS 0.6 SCCM
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL_
SPRING
SPRING
PONIS, SINE & IIPE, INDEI
OUTLET
OOTDDI
INTEGRAL RELIEF 20 psig at 0.5 lbm/hr, 17 psig reseat
INTEGRAL REDIET 20 parg at 0.3 ibm/ni, 17 parg reseat
INTEGRAL FILTER
MOUNTING
MOONITING
OPERATING TEMPERATURE RANGE 35 to 120 °F
VIBRATION, RANDOM
ACCELERATION_
SHOCK
rram cantiron
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2566
DESCRIPTION SINGLE-stage pneumatic
QUALIFICATION STATUS OSO
PROPELLANT/FLUID No. He
PRESSURE, RANGE, INLET 4015 psia (2770 N/cm ²) max.
REGULATED 220 psia (152 N/cm ²)
Olini En-I OCKIID
PROOF, INLET
PROOF, INLET PROOF, OUTLET BURST, INLET BURST, OUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 1.2 lbm (0.55 kg)
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET 0.25-in. tube (0.635 cm)
002222 0.20 222. 0020 (0.000 0)
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
1.1001111110
OPERATING TEMPERATURE RANGE 5 to 140 °F (-29 to 60 °C)
VIBRATION, RANDOM 18.6g rms
SINE 12q
ACCELERATION 18g
SHOCK
SHOCK
LIFE, SERVICE 1 yr (100,000 cycles)
SHELF 2 yr
RELIABILITY
LEAD TIPE
REMARKS
DAMA COURGE Assessed Corporation servet (see 0)
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2726-0001-7
DESCRIPTION Two-stage w/integral relief
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID N2
PRESSURE, RANGE, INLET 3300 to 200 psig
REGULATED 400±50 psig 1st stage, 200±15 psig 2nd stage
OUTLET-LOCKUP 240 psig
PROOF, INLET 4950 psig
PROOF, OUTLET 443 psig
BURST, INLET 6600 psig
BURST, OUTLET 590 psig
DROP
RATED FLOW 0 to 75 lbm/hr
LEAKAGE, INTERNAL MAX INLET PRESS 2.5 SCCM at lockup
LEARAGE, INTERNAL TREET TREES 2.3 SCEN &C TOCKUP
EXTERNAL-MAX INLET PRESS 1.0 SCCM
MASS 2.98 lbm
DIMENSIONS
MARTIN LAT DODY
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF 295 psig open, 245 psig reseat
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE65 to 200 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
MERMINO
NATA SOURCE Carleton product data sheet - 1997
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2729-0001-9
DESCRIPTION Two-stage w/integral relief
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2
PRESSURE, RANGE, INLET 3300 to 300 psig
REGULATED 400±50 psig 1st stage, 300±15 psig 2nd stage
OUTLET-LOCKUP 340 psig
PROOF, INLET 4950 psig
PROOF. OUTLET 1875 psig
BURST, INLET 6600 psig
BORSI, OCTUEI 2500 PSIG
DROP RATED FLOW 0 to 150 lbm/hr
LEAKAGE, INTERNAL MAX INLET PRESS 2.5 SCCM at lockup
EXTERNAL-MAX INLET PRESS 1.05 SCCM
MASS
DIMENSIONS
WARD LAC DANK
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET_
INTEGRAL RELIEF 1250 psig open, 1075 psig reseat
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE65 to 200 °F
VIBRATION, RANDOM
SINEACCELERATION
CHOCK
BIOCK
LIFE, SERVICE
SHELF
REDIADIUIII
DEAD TIME
COSI
REMARKS
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 1826001-19
DESCRIPTION CHARGE Inches
QUALIFICATION STATUS Unknown
PROPELLANT/FLUID 90 percent Ar, 10 percent CH4
PRESSURE, RANGE, INLET 2500 to 500 psig
REGULATED 16 psia
OUTLET-LOCKUP
PROOF, INLET 3750 psig
PROOF, OUTLET 50 psig
BURST, INLET 6250 psig BURST, OUTLET 100 psig
BURST, OUTLET 100 psig
DROP
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 0.9 lbm (0.4 kg)
DIMENSIONS 3.59 by 2.41 by 2.63 in.
MATERIAL, BODYSEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET MS 24385-4
OUTLET MS 24385-4
INTEGRAL RELIEF
THEODAL BILDED 10 m she in let 14 m she satisfies
INTEGRAL FILTER 10 μm abs inlet, 14 μm abs outlet MOUNTING
MOONT TING
OPERATING TEMPERATURE RANGE -25 to 174 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
REDIADIEITI
DEAD IIVE
REMARKS
A VALUE AND AND A VALUE
DATA SOURCE Carleton drawing 1826001-19 - 1985

MANUFACTURER Consolidated Controls, Inc.
PART NUMBER 6890
DESCRIPTION Single stage
QUALIFICATION STATUS Minuteman III
PROPELLANT/FLUID_ He, N2
PRESSURE, RANGE, INLET 3655 to 415 psia (2520 to 286 N/cm ²)
REGULATED 247 psia (170 N/cm ²)
OUTLET-LOCKUP 262 psia (180 N/cm ²)
PROOF, INLET 6015 psia (4147 N/cm ²)
PROOF, OUTLET 390 psia (268 N/cm ²)
PROOF, OUTLET 390 psia (268 N/cm ²) BURST, INLET 9015 psia (6215 N/cm ²)
BURST, OUTLET 615 psia (424 N/cm ²)
DROP
RATED FLOW 26 SCFM (12,200 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 10 SCCH He
EXTERNAL-MAX INLET PRESS
MASS 1.5 lbm (0.7 kg) DIMENSIONS 5.16 in. length by 1.84 in. diam (13.1 by 4.7 cm)
DIMENSIONS 5.16 in. length by 1.84 in. diam (13.1 by 4.7 cm)
MATERIAL, BODY 304L CRES
SEAT/SEAL 440A
OURT/OURD TTOR
SPRING
PORTS, SIZE & TYPE, INLET MS 24385-4E
OUTLET Same as inlet
INTEGRAL RELIEF
INTEGRAL FILTER 10 μm abs
MOUNTING
ODEDAMING MEMBEDAMIDE DANCE 10 to 00 0E / 20 to 20 0C)
OPERATING TEMPERATURE RANGE -19 to 90 °F (-28 to 32 °C) VIBRATION, RANDOM 22g rms
SINE 20q
ACCELERATION 14q
SHOCK 100g
OHOOK 1009
LIFE, SERVICE 10,000 cycles
SHELF 10 yr
RELIABILITY
LEAD TIME 180 days in 1974
COST 5 to 10 units - \$12,000 in 1974
REMARKS Pressure drop 165 psid (114 N/cm ²) 2.7x10 ⁻⁴ SCCS He
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Consolidated Controls, Inc.
PART NUMBER 6894
DESCRIPTION Single-stage pneumatic
QUALIFICATION STATUS Mariner 1971, Viking orbiter 1975
DESCRIPT I AND AT LITE AT LICE
PROPELLANT/FLUID N2, He PRESSURE, RANGE, INLET 4015 to 475 psia (2770 to 328 N/cm ²)
PRESSURE, RANGE, INLET 4015 to 475 psid (2770 to 328 N/CHP)
REGULATED 255 psia (175 N/cm ²) OUTLET-LOCKUP 280 psia (193 N/cm ²) PROOF, INLET 6015 psia (4147 N/cm ²)
DDOOF INTER 6015 pgia (4147 N/cm²)
PROOF, INDET 6013 psia (4147 N/CM²)
PROOF, INLET 8015 psia (4147 N/cm²) PROOF, OUTLET 420 psia (289 N/cm²) BURST, INLET 8815 psia (6077 N/cm²)
BURST, OUTLET 615 psia (424 N/cm ²)
DROP 200 psid (140 N/cm ²)
RATED FLOW 16.3 SCFM (7693 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCM He
EDMAND, INIDIAM TEN INDEL INDO
EXTERNAL-MAX INLET PRESS 1x10-6 SCCS He
MASS 1.84 lbm (0.83 kg)
DIMENSIONS 5.16 in. length by 1.84 in diam (13.1 by 4.7 cm)
MATERIAL, BODY 304L
SEAT/SEAL 440A
SPRING
PORTS, SIZE & TYPE, INLET 0.375-indiam 304L CRES tube
OUTLET Same as inlet
INTEGRAL RELIEF No
INTEGRAL FILTER 10-μm abs
MOUNTING Al alloy bracket
OPERATING TEMPERATURE RANGE 27 to 117 °F (-3 to 47 °C)
VIBRATION, RANDOM 15.6g rms
SINE 15g
ACCELERATION 6q X Y Z
SHOCK 200g
THE CERTICE E Of 000 and of
LIFE, SERVICE 5 yr; 20,000 cycles
SHELF 5 yr
RELIABILITY
LEAD TIME 180 days in 1974
COST 5 to 10 units - \$12,000 in 1974
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Fairchild Control Systems Company
PART NUMBER 63-036
DESCRIPTION Pilot-loaded, series redundant seals
QUALIFICATION STATUS Apollo Command Module RCS, LM RCS
PROPELLANT/FLUID He
PRESSURE, RANGE, INLET 4515 to 280 psia (3113 to 193 N/cm ²)
REGULATED 291 psia (201 N/cm ²)
OUTLET-LOCKUP 203/313 psia (139/215 N/cm ²)
PROOF, INLET 6780 psia (4674 N/cm ²)
PROOF, OUTLET 405 psia (279 N/cm ²)
BURST, INLET 9015 psia (6215 N/cm ²)
BURST, OUTLET 515 psia (355 N/cm ²)
DROP
RATED FLOW 3 SCFM (1416 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 17 SCCH
EXTERNAL-MAX INLET PRESS 5x10 ⁻⁵ SCCS
MASS 2.9 1bm (1.3 kg)
DIMENSIONS
MATERIAL, BODY 17-4PH, 300 series CRES
SEAT/SEAL Kynar
SPRING
PORTS, SIZE & TYPE, INLET 0.25-in. tube
OUTLET Same as inlet
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -85 to 160 °F (-65 to 71 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
CUACK
SHOCK
LIFE, SERVICE 7000 cycles
LIFE, SERVICE 7000 cycles SHELF
LIFE, SERVICE 7000 cycles SHELF RELIABILITY
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME COST \$6000 to \$9000 in 1974
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME COST \$6000 to \$9000 in 1974
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME COST \$6000 to \$9000 in 1974 REMARKS Not in production. Available by special order.
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME COST \$6000 to \$9000 in 1974 REMARKS Not in production. Available by special order. DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
LIFE, SERVICE 7000 cycles SHELF RELIABILITY LEAD TIME COST \$6000 to \$9000 in 1974 REMARKS Not in production. Available by special order.

MANUFACTURER Fairchild Control Systems Company
PART NIMBER 65-168
DESCRIPTION Pilot-loaded, series redundant seals
QUALIFICATION STATUS Saturn IV-B
DRADWITT TANK (WITTER AT II.
PROPELLANT/FLUID N ₂ , He PRESSURE, RANGE, INLET 3215 to 365 psia (2216 to 251 N/cm ²)
REGULATED 200 psia (138 N/cm ²)
OUTLET-LOCKUP 218 psia (150 N/cm ²)
PROOF, INLET 4815 psia (3319 N/cm ²)
PROOF, OUTLET 390 psia (268 N/cm²)
PROOF, OUTLET 390 psia (268 N/cm ²) BURST, INLET 8015 psia (5526 N/cm ²)
BURST, OUTLET 640 psia (441 N/cm ²)
DROP
RATED FLOW 15 SCFM (7080 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 149 SCCH
EXTERNAL-MAX INLET PRESS 2x10 ⁻⁴ SCCS
MASS 3.0 1bm (1.3 kg)
DIMENSIONS
MATERIAL, BODY 17-4PH
SEAT/SEAL Kynar
OBAL/ OBAL RYIGE
SPRING
PORTS, SIZE & TYPE, INLET MC 124-C4
OUTLET Same as inlet
INTEGRAL RELIEF
TIMPODAL DILWED
INTEGRAL FILTER
MOUNT ING
OPERATING TEMPERATURE RANGE -10 to 124 °F (-23 to 51 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 5000 cycles
SHELF
RELIABILITY
LEAD TIME
COST \$6000 to \$9000 in 1974
REMARKS Not in production. Available by special order.
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

PART NUMBER 332000 DESCRIPTION Pilot-loaded, single stage QUALIFICATION STATUS Minuteman III (Bell Aerospace) PROPELLANT/FLUID N2, He
QUALIFICATION STATUS Minuteman III (Bell Aerospace) PROPELLANT/FLUID N2, He
PROPELLANT/FLUID N2, He
PROPELLANT/FLUID N2, He
PROPELLANT/FLUID N2, He
DDTGGTTDT D317GT T317 DM OC35 to 435 onio (0400 to 005 37/m/2)
PRESSURE, RANGE, INLET 3515 to 415 psia (2423 to 286 N/cm ²)
REGULATED 240 psia (165 N/cm ²) OUTLET-LOCKUP 262 psia (180 N/cm ²) PROOF, INLET 5240 psia (3612 N/cm ²)
OUTLET-LOCKUP 262 psia (180 N/cm²)
PROOF, INLET 5240 psia (3612 N/cm²)
PROOF, OUTLET 315 psia (217 N/cm ²) BURST, INLET 6985 psia (4816 N/cm ²)
BURST, INLET 6985 psia (4816 N/Cm²)
BURST, OUTLET 615 psia (424 N/cm ²)
DROP 160 psid (110 N/cm ²)
RATED FLOW 25 SCFM (11,800 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCS He
THE PARTY AND THE PARTY AND ADDRESS OF THE PAR
EXTERNAL-MAX INLET PRESS 0.0041 SCCS
MASS 1.2 1bm (0.54 kg)
DIMENSIONS 4.85 in. length by 3.46 in. width (12.3 by 8.8 cm)
THE COURT OF THE C
MATERIAL, BODY 17-4PH, 300 series CRES
SEAT/SEAL_Kynar_
SPRING
PORTS, SIZE & TYPE, INLET MS 24385-4
OUTLET MS 24385-1
OUILEI NS 24303-I
INTEGRAL RELIEF No
INTEGRAL RELIEF NO
INTEGRAL FILTER 25 µm abs
MOUNTING Bracket
MOUNTING Bracker
OPERATING TEMPERATURE RANGE 20 to 150 °F (-7 to 65 °C)
VIBRATION, RANDOM
SINE 20g
ACCELERATION 21g X Y Z
SHOCK
TITE ADDITOR O FOOD
LIFE, SERVICE 3 yr; 5000 cycles
SHELF 3 yr
RELIABILITY
LEAD TIME
COST_ \$4000 to \$6000 in 1974
COST \$4000 to \$6000 in 1974 REMARKS
REMARKS

MANUFACTURER Fairchild Control Systems Company
PART NUMBER 385000
DESCRIPTION Pilot-loaded, series redundant seals
QUALIFICATION STATUS Apollo LM ascent engine tank pressure
PROPELLANT/FLUID He
PRESSURE, RANGE, INLET 3515 to 415 psia (2423 to 286 N/cm ²)
REGULATED 182 psia (126 N/cm ²)
OUTLET-LOCKUP 188 psia
PROOF, INLET 5335 psia (^678 N/cm ²)
PROOF, OUTLET 340 psia (. 4 N/cm ²)
BURST, INLET 8015 psia (£ 26 N/cm ²)
BURST, OUTLET 515 psia (3.5 N/cm ²)
DROP 218 psid (130 N/cm ²)
RATED FLOW 140 SCFM (66,080 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 101 SCCH
EXTERNAL-MAX INLET PRESS 3.3x10-4 SCCS
MASS 2.85 lbm (1.3 kg)
DIMENSIONS 7.62 by 5.10 in. (19.4 by 13 cm)
7.02 by 3.10 III. (13.4 by 13 Cm)
MATERIAL, BODY 17-4PH, 300 series CRES
SEAT/SEAL Kynar
and the
SPRING PORTS, SIZE & TYPE, INLET 3/8-in. tube
FORIS, SIZE & TIPE, INDET 3/0-III. CODE
OUTLET 1/2-in. tube
INTEGRAL RELIEF
THERETO AT MITTERS AT MICH.
INTEGRAL FILTER 25 µm abs
MOUNTING
OPERATING TEMPERATURE RANGE85 to 160 °F (-65 to 72 °C)
VIBRATION, RANDOM
SINE 5q
ACCELERATION 13.5g X Y Z
SHOCK 50g
LIFE SERVICE 1 vr. 5000 cycles
LIFE, SERVICE 1 yr; 5000 cycles SHELF 5 yr
SHELF 5 yr
SHELF 5 yr RELIABILITY
SHELF 5 yr RELIABILITY LEAD TIME
SHELF 5 yr RELIABILITY LEAD TIME COST
SHELF 5 yr RELIABILITY LEAD TIME
SHELF 5 yr RELIABILITY LEAD TIME COST REMARKS Not in production. Available by special order.
SHELF 5 yr RELIABILITY LEAD TIME COST

MANUFACTURER Fairchild Control Systems Company
PART NUMBER 601000
DESCRIPTION Pneumatic, single direct acting
QUALIFICATION STATUS OAO
PROPELLANT/FLUID GN2 PRESSURE, RANGE, INLET 3261 to 64.7 psia (2248 to 44.6 N/cm ²) REGULATED 5 psig (3 N/cm ²)
PRESSURE, RANGE, INLET 3261 to 64.7 ps1a (2248 to 44.6 N/cm²)
REGULATED 5 psig (3 N/cm ²)
OUTLET-LOCKUP 21.2 psia (14.6 N/cm²)
PROOF, INLET 4890 psia (3371 N/cm²)
PROOF, OUTLET 25.7 psia (17.7 N/cm²)
OUTLET-LOCKUP 21.2 psia (14.6 N/cm ²) PROOF, INLET 4890 psia (3371 N/cm ²) PROOF, OUTLET 25.7 psia (17.7 N/cm ²) BURST, INLET 8140 psia (5612 N/cm ²)
BURST, OUTLET 32.7 psia (22.5 N/cm²)
DROP
RATED FLOW 0.1 SCFM (47 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 10 SCCH
EXTERNAL-MAX INLET PRESS 5x10 ⁻⁴ SCCS
MASS 0.9 lbm (0.4 kg)
DIMENSIONS
MATERIAL, BODY 17-4PH, 300 series CRES
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET MS 33514-4
OUTLET Same as inlet
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -30 to 150 °F (-34 to 65.5 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 10,000 cycles
SHELF
RELIABILITY
LEAD TIME
COST \$4000 to \$6000 in 1974
REMARKS Not in production. Available by special order.
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)
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MANUFACTURER Fairchild Control Systems Company
PART NUMBER 617000 DESCRIPTION Pneumatic, single stage, pilot loaded
QUALIFICATION STATUS OAO
QUADITICATION STATOSCAO
PROPELLANT/FLUID N2
PRESSURE, RANGE, MLET 3915 to 165 psia (2699 to 114 N/cm ²)
REGULATED 38 psia (26 N/cm ²)
OUTLET-LOCKUP 44 psia (30 N/cm ²)
PROOF, INLET
PROOF, OUTLET
BURST, INLET 8125 psia (5606 N/cm ²)
BURST, JUTLET 175 psia (121 N/cm ²)
DROP 115 psid at max. flow RATED FLOW 1 to 5 SCFM (472 to 2360 SCCS)
RATED FLOW 1 to 5 SCFM (472 to 2360 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 10 SCCH
EXTERNAL-MAX INLET PRESS 5x10-4 SCCS
167 CO 1 O 1 L. (O CA L.)
DIMENSIONS 3.46 by 3.76 in. (8.8 by 9.6 cm)
DIFFERENCIONS 3.40 Dy 3.70 III. (0.0 Dy 3.0 Cm)
MATERIAL, BODY 17-4PH, 300 series CRES
SEAT/SEAL Kynar, polyimide
SPRING
PORTS, SIZE & TYPE, INLET MS 33514-4
CUTLET Same as inlet
INTEGRAL RELIEF Yes
INTEGRAL FILTER 25 µm abs
MOUNTING_Bracket
ODEDARING MEMBERARIDE DANGE 20 to 150 OF / 24 to 65 5 OC)
OPERATING TEMPERATURE RANGE -30 to 150 °F (-34 to 65.5 °C)
VIBRATION, RANDOM 12.7g rms SINE 15g
ACCELERATION 11.5g SHOCK 30g
SHOCK SUG
LIFE, SERVICE 5000 cycles; 1 yr
DETTABLITES
LEAD TIME
COST
REMARKS Not in production. Available by special order.
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Fairchild Control Systems Company	
PART NUMBER 679000	
DESCRIPTION Pilot-loaded, series redundant seals, pneumatic	
QUALIFICATION STATUS <u>Saturn IV B</u>	
PROPELLANT/FLUID_N2, He	
PRESSURE, RANGE, INLET 3215 to 615 psia (2216 to 424 N/cm ²)	
REGULATED 470 to 500 psia (324 to 344 N/cm ²)	
OUTLET-LOCKUP 484 psia primary (333 N/cm ²)	
PROOF, INLET 4800 psia (3309 N/cm ²)	
PROOF, OUTLET 780 psia (537 N/cm ²)	
BURST, INLET 8000 psia (5515 N/cm ²)	
BURST, OUTLET 1300 psia (896 N/cm ²)	
DROP 190 psid (131 N/cm ²)	
RATED FLOW 30 SCFM (14,160 SCCS)	
LEAKAGE, INTERNAL-MAX INLET PRESS 405 SCCS He	
EXTERNAL-MAX INLET PRESS	
MASS 2.6 1bm (1.1 kg)	
DIMENSIONS 6.87 in. length by 4.85 in. width (17.5 by 12.3 cm)	
MATERIAL, BODY 17-4PH, 300 series CRES	
SEAT/SEAL Kynar, polyimide	

SPEING	
PORTS, SIZE & TYPE, INLET MC 223 fitting w/MC-124-C4	
OUTLET Same as inlet	
INTEGRAL RELIEF No	
INTEGRAL FILTER 25 µm abs	
MOUNTING Bracket	
OPERATING TEMPERATURE RANGE -85 to 160 °F (-65 to 72 °C)	
VIBRATION, RANDOM	
SINE 20g	
ACCELERATION 8g X Y Z	
SHOCK	····
7 TDD - 4 TD3 1 TD - 4	
LIFE, SERVICE 1 yr; 5000 cycles	
SHELF 2 yr	
RELIABILITY	
LEAD TIME	
COST \$6000 to \$9000 in 1974	
REMARKS Not in production. Available by special order.	
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation rep	ort
(ref. 9)	

MANUFACTURER Fairchild Control Systems Company
PART NUMBER 994000
DESCRIPTION Single stage, pneumatic
QUALIFICATION STATUS Japanese L.V.
PROPELLANT/FLUID N2
PRESSURE, RANGE, INLET 3515 psia (2423 N/cm ²) max.
REGULATED 285 psia (197 N/cm ²)
OUTLET-LOCKUP 302 psia (208 N/cm ²)
PROOF, INLET
PROOF, OUTLET
BURST, INLET 7000 psia (4830 N/cm ²)
BURST, OUTLET 800 psia (560 N/cm ²)
DROP
RATED FLOW 1.2 to 10 SCFM (566 to 4720 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.2 SCCS He
Direction, Interest item Indirection of a coop ite
EXTERNAL-MAX INLET PRESS
MASS 1.5 lbm (0.7 kg)
DIMENSIONS 7.45 in. length by 3.46 in. width (18.9 by 8.6 cm)
Dilimitorono 7, 13 III. Iongst by 0, 10 III. Widen (10, 5 b) 0, 0 0
MATERIAL, BODY 17-4PH CRES
SEAT/SEAL Kynar
OBAL OBAL NYITEL
SPRING
PORTS, SIZE & TYPE, INLET MS 24385
TORIO, GIBE & IIII, INDBI TIO 21005
OUTLET Same as inlet
INTEGRAL RELIEF Yes
TATION OF THE MIND A C
INTEGRAL FILTER 15 µm abs
MOUNTING Bracket
OPERATING TEMPERATURE RANGE 40 to 160 °F (3 to 72 °C)
VIBRATION, RANDOM 33g rms
SINE 6g
ACCELERATION 16g X Y Z
SHOCK
LIFE, SERVICE 1 yr; 15,000 cycles
SHELF 3 yr
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Futurecraft Corporation
PART NUMBER 400176
DESCRIPTION Pneumatic, spring referenced piston
QUALIFICATION STATUS MIPDS
PROPELLANT/FILITD No.
PROPELLANT/FLUID N2 PRESSURE, RANGE, INLET 3515 psia (2425 N/cm ²)
REGULATED 450 psig (311 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET
PROOF, OUTLET
BURST, INLET
BURST, OUTLET
DROP THE ONL OF THE OWNER OWNE
RATED FLOW 1.75 lb/s LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCM He
LEARAGE, INTERNAL-MAX INDET PRESS U.UIT SCEN NO
EXTERNAL-MAX INLET PRESS
MASS 2.5 lbm (1.13 kg)
DIMENSIONS 4.13 in. length by 2.63 in. diam (10.5 by 6.7 cm)
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL EPR
CDDING
SPRING PORTS, SIZE & TYPE, INLET MS 33649-16
FORIS, SIZE & TIFE, INDET MS 33649-16
OUTLET Same as inlet
INTEGRAL RELIEF Yes
INTEGRAL FILTER
MOUNTING Bracket; two holes
ODEDAMING MEMBEDAMIDE DANGE 26 to 105 0E / 20 to 50 0C)
OPERATING TEMPERATURE RANGE -36 to 125 °F (-38 to 52 °C) VIBRATION, RANDOM 36.2g rms
SINE 2.5q
ACCELERATION 14g X Y Z
SHOCK 2500q
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME 4 months
COST
REMARKS Five delivered
DALA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Futurecraft Corporation
PART NUMBER 400210
DESCRIPTION Adjustable, high flow capacity
QUALIFICATION STATUS Minuteman reentry stage (AVCO)
PROPELLANT/FLUID N2
PRESSURE, RANGE, INLET 5000 to 750 psig
REGULATED 265±15 psig
OUTLET-LOCKUP 500 psi max.
PROOF, INLET 7500 psi
PROOF, OUTLET 1200 psi BURST, INLET 11,000 psi w/outlet plugged
BURST, OUTLET
DROP
RATED FLOW 1.02 lbm/s
LEAKAGE, INTERNAL-MAX INLET PRESS Bubble-tight in lockup
EXTERNAL-MAX INLET PRESS
MASS 2.2 lbm
DIMENSIONS 4.500 by 2.38 by 3.63 in. nom.
MATERIAL, BODY 7075T6 and 2024T4 or T351
SEAT/SEAL Kel-F and Teflon backup rings; ethylene
propylene O-ring
SPRING Ni-plated spring steel
PORTS, SIZE & TYPE, INLET MS 33656-8
OUTILIES Flance 0.005 and 0.000 in diam halos
OUTLET Flange, 0.265- and 0.290-indiam holes at 1.250 by 1.875 in.
INTEGRAL RELIEF
INTEGRAL RELIEF
INTEGRAL FILTER Sintered CRES 85 µm nom., 130 µm abs
MOUNTING Port flange
THOUSE THE TOTAL STATE OF THE S
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
Srielf
RESIMPLETI
DEAD IIME
COS1
REMARKS
DATA SOURCE Futurecraft drawing 400210 - 1985
D.III COOKCI Tacarostare drawing touring 1902

MANUFACTURER Futurecraft Corporation
PART NUMBER 400236
DESCRIPTION Two stage, series redundant 2nd stage
QUALIFICATION STATUS P80-1 Teal Ruby (Rockwell)
PROPELLANT/FLUID GN2
PROPELLANT/FLUID GN2 PRESSURE, RANGE, INLET 3700 to 500 psia
REGULATED 60±4 psia
OUTLET-LOCKUP 74 psig
REGULATED 60±4 psia OUTLET-LOCKUP 74 psig PROOF, INLET 5550 psig PROOF, OUTLET 3578 psi BURST, INLET 9540 psig BURST, OUTLET 9540 psig
PROOF, OUTLET 3578 psi
BURST, INLET 9540 psig
BURST, OUTLET 9540 psig
DIXOF
RATED FLOW 0.0031 to 0.0093 lbm/s LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MACC 1 0 1hm
DIMENSIONS 9.25 by 2.63 by 1.75 in.
MATERIAL, BODY 2024-T351 Al alloy, 304L CRES
SEAT/SEAL EP, fluorosilicone, Teflon
SPRING 17-7 CRES
PORTS, SIZE & TYPE, INLET 1/4-in. tube
test port; four-bolt flange
OUTLET 3/8-in. tube
INTEGRAL RELIEF
INTEGRAL RELIEF
INTEGRAL FILTER Inlet and test port 304 CRES 30 to 55 µm
MOUNTING
OPERATING TEMPERATURE RANGE -22 to 160 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
KEDIABILII
LEAD TIME
COST
REMARKS Pressure transducer on -2 model
DATA SOURCE Futurecraft drawing 400236 - 1985

MANUFACTURER Futurecraft Corporation
PART NUMBER 400294
DESCRIPTION Precision, high flow capacity, adjustable
QUALIFICATION STATUS Minuteman reentry vehicle (Ball Aerospace)
PROPELLANT/FLUID_GN2
PRESSURE, RANGE, INLET 3600 psia max.
DECITATED ASS/ATS main
OUTLET-LOCKUP
OUTLET-LOCKUP PROOF, INLET 5400 psia PROOF, OUTLET 743 psia BURST, INLET 7200 psia BURST, OUTLET 3600 psia DROP
PROOF, OUTLET 743 psia
BURST, INLET 7200 ps1a
DROP
RATED FLOW 6 SCFM min. LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 0.40 lbm
DIMENSIONS 1.87 in. (less fitting) by 1.56 in. (less flange) by
1.13 in.
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL_
CDD TAYO Consider the Cold of Cold of Cold
SPRING Spring steel or CrV alloy PORTS, SIZE & TYPE, INLET per MS 16142-1/4 modified
PORIS, SIZE & TIPE, INLET DEL MS 16142-1/4 MODITIED
OUTLET MS 33656E-3
OUTET NO 33030E-3
INTEGRAL RELIEF
INTEGRAL FILTER Vent screen, CRES
MOUNTING Four 8-32 holes on a 0.8125 in. square
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINEACCELERATION
SHOCK
bilock
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COS1
REMARKS
DATA SOURCE Futurecraft drawing 400294 - 1985

MANUFACTURER HTL Industries, Inc.
PART NUMBER 146650-10, 146931
DESCRIPTION Single stage, pneumatic
QUALIFICATION STATUS Centaur
PROPELLANT/FLUID He, N2
PRESSURE, RANGE, INLET 490 to 455 psia (337 to 313 N/cm ²)
REGULATED 297 to 315 psia (204 to 213 N/cm ²)
OUTLET-LOCKUP 312 to 330 psia (215 to 227 N/cm ²)
PROOF, INLET PROOF, OUTLET 435 psia (299 N/cm ²)
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW 8.9 SCFM He (4200 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 2.5 lbm (1.1 kg)
DIMENSIONS
MARIDIAL DODY 11 -11 ODEC
MATERIAL, BODY Al alloy and CRES
SEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF No
INTEGRAL FILTER 5 μm nom.
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 125 °F (-73 to 52 °C)
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
Onoon
LIFE, SERVICE 200 cycles
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS_
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER HTL Industries, Inc.
PART NUMBER 146650-11, 146709
DESCRIPTION Single stage, pneumatic
QUALIFICATION STATUS Centaur
PROPELLANT/FLUID He, N ₂
PRESSURE, RANGE, INLET 3375 to 715 psia (2326 to 492 N/cm ²)
REGULATED 475 psig (327 N/cm ²)
OUTLET-LOCKUP 455 to 490 psia (313 to 337 N/cm ²)
PROOF, INLET
PROOF, OUTLET 640 psia
BURST, INLET BURST, OUTLET
BURST, OUTLET
DROP PARTED FLOW 8 0 SCEW NO. (4200 SCCS)
RATED FLOW 8.9 SCFM He (4200 SCCS) LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 2.5 lbm (1.1 kg)
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL_
SPRING TWEE TWEE
PORTS, SIZE & TYPE, INLET
OTITI.ET
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER 5 µm nom.
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 125 °F (-73 to 52 °C)
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
bilock
LIFE, SERVICE 200 cycles
SHELF
SHELF RELIABILITY
LEAD TIME
COST
REMARKS
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DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report (ref. 9)
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MANUFACTURER Marotta Scientific Controls, Inc.
PART NUMBER 226154, model number RV74A DESCRIPTION Pneumatic
DESCRIPTION Pneumatic
QUALIFICATION STATUS Apollo, DMSP
DRODUCT ANTO INCOME.
PROPELLANT/FLUID Air, N2 (2000)
PRESSURE, RANGE, INLET 4500 to 800 psia (3102 to 551 N/cm ²)
REGULATED 35 to 630 psig (24 to 434 N/cm ²)
OUTLET-LOCKUP 500 psia (344 N/cm ²) PROOF, INLET 6765 psia (4664 N/cm ²)
PROOF, INLET 6765 psia (4664 N/cm²)
PROOF, OUTLET
BURST, INLET 11,265 psia (7766.9 N/cm ²)
BURST, OUTLET
DROP
RATED FLOW_ LEAKAGE, INTERNAL-MAX INLET PRESS
LEAKAGE, INTERNAL-MAX INLET PRESS
TISTERDATAT ACASE TATE THE DOUGG
EXTERNAL-MAX INLET PRESS
MASS 2.0 1DM (0.91 kg)
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL_
SPRING PORTS, SIZE & TYPE, INLET
PORTS, SIZE & TYPE, INLET
OTIMI DM
OUTLET
INTEGRAL RELIEF Yes
TAMEGRAL ELIMER
INTEGRAL FILTER
MOUNTING
ODEDAMING MEMBEDAMIDE DANGE O to 100 OF / 10 to 70 OG
OPERATING TEMPERATURE RANGE 0 to 160 °F (-18 to 72 °C)
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
TIER CERTIFOR
LIFE, SERVICE
SHELFRELIABILITY
LEAD TIME
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Marotta Scientific Controls, Inc.
PART NUMBER 280601, model number RS572VB
DESCRIPTION Pneumatic
QUALIFICATION STATUS Safequard
PROPELLANT/FLUID Inert gas
PRESSURE, RANGE, INLET 3015 to 565 psia (2080 to 390 N/cm ²)
OUTLET-LOCKUP 315 psia (217 N/cm ²) PROOF, INLET 7515 psia (5181 N/cm ²)
PROOF, INLET 7515 psia (5181 N/cm²)
PROOF, OUTLET
BURST, INLET 20,015 psia (13,800 N/cm ²)
BURST, OUTLET
DROP
RATED FLOW 420 SCFM (198,240 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS 3.8 lbm (1.7 kg)
DIMENSIONS
MATERIAL, BODY Al alloy
SEAT/SEAL_Nylon
PORTS, SIZE & TYPE, INLET
OTIMI EM
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER_
MOUNTING
OPERATING TEMPERATURE RANGE 45 to 160 °F (7 to 72 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIADILII
DEAD TIME
CO21
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Marotta Scientific Controls, Inc.
PART NUMBER 280778, model number RV99A
DESCRIPTION Two-stage reducer
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID He, N2, Air
PRESSURE, RANGE, INLET 3015 to 615 psia (2080 to 424 N/cm ²)
OUTLET-LOCKUP 525 psia (361 N/cm ²) PROOF, INLET 4515 psia (3113 N/cm ²)
DDOOF INTER A515 pgia (301 N/Cm²)
PROOF, INLET 4515 psia (3113 N/cm²)
PROOF, OUTLET 4515 psid (5115 N/CM ²)
BURST, INLET 5015 psia (4147 N/cm ²) BURST, OUTLET 6015 psia (4147 N/cm ²)
DROP
DAUED FLOW 2 2 CCEM (1550 CCCC)
RATED FLOW 3.3 SCFM (1558 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MAGG 10 lbm (4 5 kg)
MASS 10 lbm (4.5 kg)
DIMENSIONS
MATERIAL, BODY 300 series CRES
SEAT/SEAL_Nylon
SPRING
PORTS, SIZE & TYPE, INLET MS 33649-6
PORIS, SIZE & TIPE, INDET TO 33049-0
OUTLET Same as inlet
Outher Same as infec
INTEGRAL RELIEF
TNTECDAL ETITED
INTEGRAL FILTER MOUNTING
MOONITING
OPERATING TEMPERATURE RANGE 20 to 120 °F (-8 to 47 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK_
TIPP CPDVICE
LIFE, SERVICE
SHELF_
RELIADILITI
LEAD TIME
COST DEMA DIZE
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Parker Hannifin
PART NUMBER 5660048
DESCRIPTION Pneumatic
QUALIFICATION STATUS LEM descent
AND A DESCRIPTION OF THE PARTY
PROPELLANT/FLUID
PRESSURE, RAYGE, INLET 1750 psia (1208 N/cm ²)
REGULATED 246 psia (170 N/cm ²) OUTLET-LOCKUP
DDOOR TAILED
PROOF, INLET
PROOF, OUTLET BURST, INLET
BURST, INLET
DROP
RATED FLOW
RATED FLOW LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS
MASSDIMENSIONS
MATERIAL BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
OUTLET
INTEGRAL RELIEF
TAMPECOAL ETT PED
INTEGRAL FILTER MOUNTING
POONTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COS1
REMARKS
DAME GOITHOR Assessed Company in the CA
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 2328-1
DESCRIPTION Pneumatic
QUALIFICATION STATUS Sandia (classified)
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 500 psia (345 N/cm ² , max.
REGULATED 100 psia (69 N/cm ²)
OUTLET-LOCKUP
PROOF, OUTLET
BURST, INLET
BURST, INLET BURST, OUTLET
DROP
RATED FLOW LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
MATERIAL, BODY
SPRING
PORTS, SIZE & TYPE, INLET
ांगा एक
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
21ME
ACCELERATION
SHOCK
ITEE CEDITCE
LIFE, SERVICE
SHELF PELIABILITY
RELIABILITY LEAD TIME
LEAD TIME COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 2828-0
DESCRIPTION Pneumatic
QUALIFICATION STATUS Sandia (classified)
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 4000 psia (2760 N/cm ²) max.
REGULATED 500 psia (345 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET_
PROOF, OUTLET
BURST, INLET BURST, OUTLET
DDCD DDCD
DROPRATED_FLOW
LEAKAGE, INTERNAL-MAX INLET TRESS
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
1CR MIND TRAFF CARTS
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER_
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION RANDOM
VIBRATION, RANDOM
SINE ACCELERATION SHOCK
SHOCK
LIFE, SERVICE
Shelf
VEH 7 * 4:70 T T T T T
LEAU TIME
COS1
REMARKS_
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 2832
DESCRIPTION Pneumatic
QUALIFICATION STATUS Sandia (classified)
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 2000 psia (1380 N/cm ²) max.
DECITATED 10 main /0 0 N/am/)
OTHER TOOKIES
DDOOF INTER
PROOF, OUTLET BURST INLET
BURST, INLET BURST, OUTLET
DROP
DROPRATED_FLOW
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
SPRING_
PORTS, SIZE & TYPE, INLET
ለተጥ፣ ውጥ
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
INTEGRAL FILTER MOUNTING
TOURTING
OPERATING TEMPERATURE RANGE
VIERATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Pyronetics Devices, Inc.
PART NUMBER 2834
DESCRIPTION Pneumatic
QUALIFICATION STATUS Sandia (classified)
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 515 psia (355 N/cm ²) max.
REGULATED 35 psia (24 N/cm ²)
OUTLET-LOCKUP
PROOF, INLEI
7 TOOL 1 OOTHUT
BURST, INLET
BURST, INLET BURST, OUTLET
DROP
RATED FLOW LEAKAGE, INTERNAL-MAX INLET PRESS
LEAKAGE, INTERNAL-MAX INLET PRESS
DIMEDIAL VIII THE DO DOUGG
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL
ATT TO THE STATE OF THE STATE O
SPRING_
PORTS, SIZE & TYPE, INLET
ATAUT EU
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
ODEDATING TEMPEDATITUE DANGE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINEACCELERATION
ACCELERATIONSHOCK
SHOCK
TIPP SPRICE
LIFE, SERVICE
SHELF
TEND TIME
LEAD TIME
COSTREMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Sterer Engineering & Manufacturing Company
PART NUMBER 25210-1
DESCRIPTION Pneumatic
QUALIFICATION STATUS Mariner Mars 1971
PROPELLANT/FLUID N2
PRESSURE, RANGE, INLET 3015 to 0 psia (2078 to 0 N/cm ²)
REGULATED 15 psig (10 N/cm ²)
OUTLET-LOCKUP 16.2 psig
PROOF, INLET 4515 psia (3113 N/cm ²)
PROOF, OUTLET
BURST, IN ET 6615 psia (4564 N/cm ²)
BURST, OUILET
DROP
RATED FLOW 1.13 SCFM (533 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCS He
EXTERNAL-MAX INLET PRESS Zero
MASS 0 617 lbm (0 279 kg)
DIMENSIONS
MATERIAL, BODY 17-4PH CRES
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET 0.246 in.
FORIS, SIZE & TIPE, INDET U.Z40 III.
OUTLET Same as inlet
OUTDET Same as INTEC
INTEGRAL PELLER
INTEGRAL RELIEF
INTEGRAL FILTER_
INTEGRAL FILTER
INTEGRAL FILTER
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM_
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 2x106 cycles
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 2x106 cycles SHELF
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 2x106 cycles SHELF RELIABILITY
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 2x106 cycles SHELF RELIABILITY LEAD TIME
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _2x106 cycles SHELF RELIABILITY LEAD TIME COST
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE -4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 2x106 cycles SHELF RELIABILITY LEAD TIME
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _2x106 cycles SHELF RELIABILITY LEAD TIME COST
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _2x106 cycles SHELF RELIABILITY LEAD TIME COST REMARKS_
INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE4 to 167 °F (-20 to 75 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _2x106 cycles SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Sterer Engineering & Manufacturing Company
PART NUMBER 33120-1
DESCRIPTION Pneumatic
QUALIFICATION STATUS ERTS
PROPELLANT/FLUID Freon 14
DESCRIPE DANCE INTER 2015 prio (1200 M/cm2)
PRESSURE, RANGE, INLET 2015 psia (1390 N/cm ²) REGULATED 55 to 60 psig (37 to 41 N/cm ²)
OUTLET-LOCKUP
DDOOR THE 2015
PROOF, INLET 3015 psia (2078 N/Cm²) PROOF, OUTLET
DITTOR TAILED 9015 ngia (5526 M/cm2)
DDOD
RATED FLOW 8.3 SCFM (3900 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCS He
EXTERNAL-MAX INLET PRESS 2x10 ⁻⁵ SCCS
MASS 1.3 lbm (0.58 kg)
DIMENSIONS
MATERIAL, BODY 6A1-4V Ti
SEAT/SEAL_ Delrin
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET MS 33656-4
TAMBODAT DELTEE
INTEGRAL RELIEF
TAIMECHAT ETT WED
INTEGRAL FILTER_
MOUNTING
OPERATING TEMPERATURE RANGE 20 to 125 °F (-7 to 107 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 106 cycles
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Sterer Engineering & Manufacturing Company PART NUMBER 34810
DESCRIPTION Pneumatic, series redundant stages
QUALIFICATION STATUS Project 169
PROPELLANT/FLUID N2
PRESSURE, RANGE, INLET 365 psia (252 N/cm²) max.
PROPELLANT/FLUID N2 PRESSURE, RANGE, INLET 365 psia (252 N/cm ²) max. REGULATED 50 psig (34 N/cm ²)
OUTHER-HOCKOP 32:2 para (30:1 N/Cm-)
PROOF, INLET
PROOF, OUTLET 90 psia (62 N/cm ²) BURST, INLET 1015 psia (700 N/cm ²)
BURST, INLET 1015 psia (700 N/cm²)
BURST, OUTLET 335 psia (231 N/cm²)
DROP
RATED FLOW 2.5 SCFM (1100 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCS He
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
MATERIAL, BODY 6A1-4V Ti
SEAT/SEAL Kynar
SPRING_
PORTS, SIZE & TYPE, INLET MS 33656-4
OTHER TIPE CLASSICS IN TACK
OUTLET Same as inlet
THURSDAY DELTER
INTEGRAL RELIEF
INTEGRAL FILTER
MATRITUT NA
MOUNTING
MOUNTING
OPERATING TEMPERATURE RANGE -50 to 200 °F (-45 to 93 °C)
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _500,000 cycles
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _500,000 cycles SHELF RELIABILITY
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE50 to 200 °F (-45 to 93 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE _ 500,000 cycles SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Sterer Engineering & Manufacturing Company
PART NUMBER 46240
DESCRIPTION Pneumatic QUALIFICATION STATUS Viking orbiter 1975
QUALIFICATION STATOS VIKING OLDICEL 1975
PROPELLANT/FLUID GN2
PRESSURE, RANGE, INLET 4515 to 515 psia (3113 to 355 N/cm ²)
REGULATED 25 psig (17 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET 6765 psia (4664 N/cm ²)
PROOF, OUTLET 105 psia (72.3 N/cm ²)
BURST, INLET 9015 psia (6215 N/cm ²)
BURST, OUTLET 135 psia (93 N/cm ²)
DROP
RATED FLOW 0 to 65 SCFM (0 to 3000 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCS He (1.0 SCCH N2 at
2768 N/cm ²)
EXTERNAL-MAX INLET PRESS 1.39x10-5 SCCS GN2
MASS 0.88 lbm (0.39 kg)
DIMENSIONS
MATERIAL, BODY 347 CRES, 7075-T73 Al alloy
SEAT/SEAL Vespel
SPRING
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF_
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF_
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF_ INTEGRAL FILTER MOUNTING_
PORTS, SIZE & TYPE, INLET0.25-in. 347 CRES tube OUTLET0.312-in. 347 CRES tube INTEGRAL RELIEF
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF_ INTEGRAL FILTER_ MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM
PORTS, SIZE & TYPE, INLET0.25-in. 347 CRES tube OUTLET0.312-in. 347 CRES tube INTEGRAL RELIEF
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF_ INTEGRAL FILTER_ MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM
PORTS, SIZE & TYPE, INLET0.25-in. 347 CRES tube OUTLET0.312-in. 347 CRES tube INTEGRAL RELIEF
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK
OUTLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY LEAD TIME
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY LEAD TIME COST
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY LEAD TIME
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY LEAD TIME COST
PORTS, SIZE & TYPE, INLET_ 0.25-in. 347 CRES tube OUTLET_ 0.312-in. 347 CRES tube INTEGRAL RELIEF
PORTS, SIZE & TYPE, INLET 0.25-in. 347 CRES tube OUTLET 0.312-in. 347 CRES tube INTEGRAL RELIEF INTEGRAL FILTER MOUNTING OPERATING TEMPERATURE RANGE 32 to 160 °F (0 to 72 °C) VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE 106 cycles SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Sterer Engineering & Manufacturing Company
PART NUMBER 50750
DESCRIPTION Pneumatic
QUALIFICATION STATUS Delta, P72-2
PROPELLANT/FLUID No.
PROPELLANT/FLUID N2 PRESSURE, RANGE, INLET 2015 psia (1390 N/cm ²)
REGULATED 215 to 255 psig (148 to 176 N/cm ²)
OUTLET-LOCKUP
PROOF CUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS DIMENSIONS
DIMENSIONS
MATERIAL, BODY
SEAT/SEAT.
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
TIPE CENTICE
LIFE, SERVICE
SHELF_
RELIABILITY
LEAD TIMECOST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Tavco, Inc.
PART NUMBER 234635
DESCRIPTION Pneumatic
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID Air, N2
PRESSURE, RANGE, INLET 3015 to 1015 psia (2078 to 700 N/cm ²)
REGULATED 200 to 375 psia (137 to 258 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET PROOF, OUTLET BURST, INLET
PROOF, OUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW 10 SCFM (4720 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS Zero
MACC 0 6 lbm (0 27 kg)
MASS 0.6 lbm (0.27 kg)
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
T THE CHRISTON
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Tavco, Inc.
PART NUMBER 2344344
DESCRIPTION Pneumatic
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID Air, N2
PRESSURE, RANGE, INLET 215 to 165 psia (148 to 113 N/cm ²)
REGULATED 100 psia (69 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET
PROOF, OUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW 20 SCFM (9440 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.017 SCCM He
THE PROPERTY AND THE PROPERTY OF THE PROPERTY
EXTERNAL-MAX INLET PRESS Zero
MASS 0.7 1bm (0.32 kg)
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET
FORIS, SIZE & TIFE, INDEI
OUTLET
001831
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Tavco, Inc.
PART NUMBER 2346334
DESCRIPTION Pneumatic
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 3815 to 915 psia (2630 to 630 N/cm ²)
PiGULATED 700 psia (482 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET .
PROOF, OUTLET
BURST, INLET_
BURST, OUTLET
DROP
RATED FLOW 4.33 SCFM (2044 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.1 SCCH
EXTERNAL-MAX INLET PRESS
MASS 1.8 1bm (0.81 kg)
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF
THIDORAN MINITH
INTEGRAL FILTER
MOUNTING
POONTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
tree denutes
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report (ref. 9)

MANUFACTURER Tavco, Inc.
PART NUMBER 2346340
DESCRIPTION Pneumatic
QUALIFICATION STATUS Qualified
PROPELLANT/FLUID Air, N2
PRESSURE, RANGE, INLET 665 to 140 psia (458 to 96.5 N/cm ²)
REGULATED 7.5 psia (5.1 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET
PROOF, OUTLET
BURST, INLET
BURST, OUTLET
DROP
RATED FLOW 1.6 SCFM (755 SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS 0.025 lb/min
EXTERNAL-MAX INLET PRESS Zero
MASS 1.3 1bm (0.59 kg)
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET
OUTLET
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE
VIBEATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAME COMPONE ATOMOT A LANGE OF CO.
DATA SOURCE <u>IITRI lists (ref. 8) and Aerospace Corporation report</u> (ref. 9)

MANUFACTURER TRW
PART NUMBER JPL 10000055
DESCRIPTION Single stage, direct acting
QUALIFICATION STATUS Mariner 1964, 1969
PROPELLANT/FLUID GN2
PRESSURE, RANGE, INLET 3600 to 360 psia (2482 to 248 N/cm ²)
REGULATED 283 psig (195 N/cm ²)
OUTLET-LOCKUP 316 psia (217 N/cm ²)
PROOF, INLET 5400 psia (3723 N/cm ²)
PROOF, OUTLET 2700 psia (1861 N/cm²)
BURST, INLET 7920 psia (5460 N/cm ²)
BURST, OUTLET 3960 psia (2730 N/cm ²)
DROP
RATED FLOW 0.12 SCFM at 308 psia (56 SCCS at 212 N/cm ²)
LEAKAGE, INTERNAL-MAX INLET PRESS 4.0 SCCH GN2 at 308 psia
(212 N/cm ²)
EXTERNAL-MAX INLET PRESS 2.7x10-4 SCCS N2 at 212 N/cm2
MASS 1.4 1bm (0.63 kg)
DIMENSIONS
15 mm - 2 - month - 40 - 4 - m - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
MATERIAL, BODY 6061-T651 Al alloy
SEAT/SEAL 6061-T651 Al alloy
A Day Tata
PORTS, SIZE & TYPE, INLET 0.25-in. tube (welded)
PORTS, SIZE & TYPE, INLET 0.25-In. tube (welded)
OUTLET 0.25-in. tube (bolt flange)
INTEGRAL RELIEF
THIDOWN HUMIUL
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE 14 to 167 °F (-10 to 75 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE Limited
SHELF
RELIABILITY
LEAD TIME Not in manufacture
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Whittaker Controls Division
PART NUMBER 123035
DESCRIPTION Single stage, pressure balanced gage
QUALIFICATION STATUS Agena
PROPELLANT/FLUID He
PRESSURE, RANGE, INLET 3015 psia (2080 N/cm ²)
REGULATED 50 psia max. (35 N/cm ²)
OUTLET-LOCKUP
PROOF, INLET 4515 psia (3113 N/cm ²)
PROOF, OUTLET 100 psia (69 N/cm ²) BURST, INLET 6015 psia (4147 N/cm ²)
BURST, INLET 6015 psia (4147 N/cm²)
BURST, OUTLET 125 psia (86 N/cm ²)
DROP
RATED FLOW LEAKAGE, INTERNAL-MAX INLET PRESS 12,000 SCCH
EXTERNAL-MAX INLET PRESS Zero
MASS 1.6 lbm (0.72 kg)
DIMENSIONS
MATERIAL, BODY Al alloy
SEAT/SEAL_
SPRING
PORTS, SIZE & TYPE, INLET AND10050-8
OUTLET MS 24386-8
IMPECDAL DELIFE
INTEGRAL RELIEF
INTEGRAL FILTER
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 100 °F (-73 to 38 °C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
TIME CENTICE
LIFE, SERVICE
SHELF
RELIABILITY LEAD TIME
LEAD TIMECOST
REMARKS
DATA SOURCE IITRI lists (ref. 8) and Aerospace Corporation report
(ref. 9)

MANUFACTURER Whittaker Controls Division
PART NUMBER 227705
DESCRIPTION Pneumatic
QUALIFICATION STATUS Shuttle
ODODET S NAME (TOT LATE)
PROPELLANT/FLUID
FRESSURE, RANGE, INLET 865 psia (597 N/cm ²) REGULATED 20 psia (14 N/cm ²)
OURI ER LOCKID
DD AAM TATE TO
PROOF, INLETPROOF, OUTLET
BURST, INLET
BURST, INLET BURST, OUTLET
RATED FLOW 1170 SCFM (5.5×10 ⁵ SCCS)
LEAKAGE, INTERNAL MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
MATERIAL, BODY_
SEAT/SEAL
SPRINGPORTS, SIZE & TYPE, INLET
PORTS, SIZE & TYPE, INLET
OTHER THE
OUTLET
INTEGRAL RELIEF
INTECDAL FILTED
INTEGRAL FILTER
MOUNT I NG
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAME GOLDON TOWNS OF THE CONTRACT OF THE CONTR
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Whittaker Controls Division
PART NUMBER 228045
DESCRIPTION Pneumatic QUALIFICATION STATUS Shuttle
QUALIFICATION STATUS Shuttle
PROPELLANT/FLUID
PRESSURE, RANGE, INLET 4515 psia (3115 N/cm ²) max.
ATTEN TANTAN
DOOR INTER
PROOF, INLETPROOF, OUTLET
RURST, INLET
BURST, OUTLET
IIROP
RATED FLOW 470 SCFM (2.2x10 ⁵ SCCS)
LEAKAGE, INTERNAL-MAX INLET PRESS
EXTERNAL-MAX INLET PRESS
MASS
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL_
SPRINGPORTS, SIZE & TYPE, INLET
PORTS, SIZE & TYPE, INLET
OTHER EM
OUTLET
INTEGRAL RELIEF Yes
TMTPCDAI FILTED
INTEGRAL FILTER
MOUNT I NG
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Aerospace Corporation report (ref. 9)

HEATER/HEAT EXCHANGER

No data have been obtained for this section.

MANUFACTURER Abex Corporation
PART NUMBER Model 403
DESCRIPTION Four-way or three-way miniature servo valve
QUALIFICATION STATUS
PROPELLANT/FLUID Hydraulic
PRESSURE, OPERATING 300 to 4500 psi
PROOF
BURST
DROP 1000 psi
RATED FLOW 0.1 to 1.8 GPM
LEAKAGE, INTERNAL 0.08 GPM at 3000 psi
EXTERNAL
MASS 0.36 lbm
DIMENSIONS 2.20 by 1.54 by 1.28 in.
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE In base mount
20110/ 0100 0 1111 2000 11101110
INTEGRAL FILTER 20 µm
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION
MOUNTING Base; four 0.149/0.154-indiam holes on 0.938- by
1.032-in. rectangle
1.032-III. Lectangle
OPERATING TEMPERATURE RANGE -65 to 275 °F
OPERATING TEMPERATURE NAMES -03 CO 273 P
VIBRATION, RANDOM
SINE SINE
ACCELERATION
SHOCK
SHOCK
TIDE CENTICE
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Abex product data sheet - 1986

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2665-0001-31
DESCRIPTION Control valve, solenoid
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID N2
PROPERTURALLY EROLD NZ
PRESSURE, OPERATING 0 to 295 psig
77007 490 mmim
BURST 590 psig
DROP 2 psid at 200 psi
BURST 590 psig DROP 2 psid at 200 psi RATED FLOW 75 1bm/hr at 200 psi
LEAKAGE, INTERNAL 0.5 SCCH at 200 psi
EXTERNAL 0.2 SCCM
MASS 0.48 1bm
AVERICALS LORDS
MATERIAL, BODY
MATERIAL, BUDY
SEAT/SEAL_
FORIS, SIZE & IIEE
INTEGRAL FILTER
DECDONCE TIME ODEN CTOCE
VOLTAGE, OPERATING 18 to 32 Vdc
PULL IN/DROP OUT
WA''''S 9.8 max.
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
TIT DEL CIT DE LE COMME
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS w/position indicator
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2666-0001-23 DESCRIPTION Motor-operated latching valve
DESCRIPTION Motor-operated latching valve
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID N2
PRESSURE, OPERATING 0 to 3300 psig
PROOF 4950 psig
BURST 6600 psig
DROP 10 psid max.
RATED FLOW 0 to 75 lbm/hr
LEAKAGE, INTERNAL 2.5 SCCM max. at max. inlet
EXTERNAL 0.3 SCCM
MASS 2.21 lbm
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER RESPONSE TIME, OPEN/CLOSE VOLTAGE OPERATING 24 to 32 Vdc
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT
WATTS 4.4 max.
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 200 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS w/microswitch position indicator
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2666-0001-25
DESCRIPTION Motor-operated latching valve
QUALIFICATION STATUS Space shuttle ARPCS
DOORSEL AND ON THE DOOR
PROPELLANT/FLUID_O2
DDECCIDE ODEDARING 0 to 2200 maia
PRESSURE, OPERATING 0 to 3300 psig
PROOF 4950 psig
BURST 6600 psig DROP 30 psid at 200 psi
RATED FLOW 150 lbm/hr at 200 psi
TATED FLOW 130 IDM/III &C 200 PSI
LEAKAGE INTERNAL 2.5 SCCM max at max inlet
LEAKAGE, INTERNAL 2.5 SCCM max. at max. inlet EXTERNAL 0.3 SCCM max.
DIMENSIONS
91121110110110
MATERIAL, BODY
SEAT/SEAL_ PORTS. SIZE & TYPE
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT
WATTS 4.4 max.
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 200 °F
VIBRATION, RANDOM
21ME
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS w/microswitch position indicator
TIME COURSE OF 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2710-0001-1
DESCRIPTION Airlock isolation valve
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_Air, O2
PRESSURE, OPERATING 16 psig
PROOF 24 psig
BURST 32 psig
DROP
RATED FLOW 150 lbm/hr at 16 psi
LEAKAGE, INTERNAL 1.5 SCCM
EXTERNAL
MASS 1.25 LDIII
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 18 to 32 Vdc
PULL IN/DROP OUT
WATTS 5.5, motor running; 14, motor stalled
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 200 °F
VIBRATION, RANDOM
SIME
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST_
REMARKS w/microswitch position indicator
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2722-0001-9
DESCRIPTION Solenoid valve
QUALIFICATION STATUS
PROPELLANT/FLUID 02
PROPELLANT/FLUID
PRESSURE, OPERATING 0 to 1250 psig
PROOF 1875 psig
BURST 2500 psig DROP 4 psid at 200 psi
RATED FLOW 75 1bm/hr at 200 psi
LEAKAGE, INTERNAL 1.0 SCCM at 900 psi inlet
EXTERNAL 0.2 SCCM
MASS 1.367 lbm (valve), 0.8 lbm (power saver 2928-0001-5)
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER RESPONSE TIME, OPEN/CLOSE
RESPONSE TIME, OPEN/CLOSE
VOLTAGE. OPERATING 18 to 32 vdc
PULL IN/DROP OUT
WATTS 11.2 max.
ELECTRICAL CONNECTION MOUNTING
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
UIDDAMIOU DAVIDOV
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COSTREMARKS w/position indicator
REMARKS W/position indicator
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2724-0001-3
DESCRIPTION Solenoid valve
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID O2, N2
· · · · · · · · · · · · · · · · · · ·
PRESSURE, OPERATING 0 to 20 psig
PROOF 30 psig
BURST 45 psig
DROP
RATED FLOW 0.5 lbm/hr
LEAKAGE, INTERNAL 5 SCCH at 20 psig
EXTERNAL 0.2 SCCM
DIMENSIONS
MATERIAL, BODY
MATTER LAT. BODY
MATERIAL, BODY SEAT/SEAL
SEAT/SEAL_ PORTS, SIZE & TYPE
TORIO, OTOB G TITE
INTEGRAL FILTER
DECDONCE TIME ODEN/CLOCE
VOLTAGE, OPERATING 18 to 32 Vdc
PULL IN/DROP OUT
WATTS 9.2
ELECTRICAL CONNECTION
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE 35 to 120 °F
OPERATING TEMPERATURE RANGE 33 CO 120 F
VIDDAMION DANDON
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
I TOD ATTITAT
LIFE, SERVICE
CYCLE_
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS w/position indicator
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2763-0001-9
DESCRIPTION Equalization valve
QUALIFICATION STATUS Space shuttle ARPCS
PROPELLANT/FLUID_Air, O2
PRESSURE, OPERATING 14.7 psig
PROOF 22 psig
BORBI 29.4 PSIG
DROP
RATED FLOW 0.1, 0.5 psi/s
LEAKAGE, INTERNAL 5.0 SCCM max.
EXTERNAL 5.0 SCCM max.
MASS 1.09 1bm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING
VOLTAGE, OPERATING PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE -100 to 160 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SCITTOR Carleton product data sheet - 1987

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MANUFACTURER Carleton Technologies, Inc.
PART NUMBER 2874-0001-3
DESCRIPTION Cabin pressure bleed valve, motor operated
QUALIFICATION STATUS Space shuttle ARPCS
DRODELLANG (ELLIED O. M.
PROPELLANT/FLUID 02, N2
PRESSURE, OPERATING 16.7 psig
DROOF 24 paig
DIDOM 22 maio
מסמת
RATED FLOW 15±1 lbm/min at 2 psid
LEAKAGE, INTERNAL 1 SCCM
EXTERNAL
MASS 2.39 IDM
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT
WATTS 6.72 motor running, 32.2 motor stalled
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 200 °F
Orbitaliano rum bitaliona statoa oo co aoo r
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS w/microswitch position indicator
D101 G07000 G 1.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DATA SOURCE Carleton product data sheet - 1987

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P9-649 (Gen. Dyn. P/N GD/C27-08250-1)
DESCRIPTION Bleed valve
QUALIFICATION STATUS Atlas staging (General Dynamics Convair)
PROPELLANT/FLUID
DESCRIPE OPERATING 2000 main
PRESSURE, OPERATING 3000 psig PROOF
PROOF
BURST
DROPRATED_FLOW
RATED FLOW
LEAKAGE, INTERNAL_
EXTERNAL
MASS
DIMENSIONS
MAMERITAL DODY 2024 M251 A1 allers
MATERIAL, BODY 2024-T351 Al alloy SEAT/SEAL Teflon
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -200 to 160 °F
TITUDA OT DANDON
VIBRATION, RANDOM_
SINE_
ACCELERATIONSHOCK
SNOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P22-406 (Ham. Stan. SV701612)
DESCRIPTION Shutoff valve
QUALIFICATION STATUS Gemini backpack (Hamilton Standard)
PROPELLANT/FLUID
DESCRIPE OPERATING 7500 pois
PRESSURE, OPERATING 7500 psig
PROOF BURST
DROP
RATED FLOW
LEAKAGE, INTERNAL
EVIEWAL
MASS
DIMENSIONS
MATERIAL, BODY 303 CRES
SEAT/SEAL Silicone, Teflon
DODING CITE C WYDE ANDIAOSO A
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -65 to 175 °F
VIBRATION, RANDOM
OINE
ACCELERATION
SHOCK
7 TTD
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIMECOST
DEMADEC
ALFARIO_
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P38-717 (Bell P/N 8250-472095)
DESCRIPTION Shutoff valve
QUALIFICATION STATUS <u>Gemini, Agena engine (Bell Aerospace)</u>
PROPELLANT/FLUID
PRESSURE, OPERATING 255 psig
PROOF
BURST
DROF
RATED FLOW
LEAKAGE, INTERNAL
EXTERNAL
MASS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL Buna-N
PORTS, SIZE & TYPE MS 24385-5
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
PULL IN/DROP OUT
<i>አለ</i> ን መጥሮ
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE65 to 160 °F
VIBRATION, RANDOM
SINE
ACCEDENTION
SHOCK
TIPE CELUICO
LIFE, SERVICE
SHELF
PRITABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P54-717
DESCRIPTION Shutoff valve
QUALIFICATION STATUS Gemini O2 and H2 system (AiResearch)
PROPELLANT/FLUID
DESCRIPE OPERATING 1050 maig
PRESSURE, OPERATING 1050 psig PROOF
PROOF BURST
DROP
DROPRATED_FLOW
LEAKAGE, INTERNAL
EXTERNAL MASS
MASS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy SEAT/SEAL Ethylene propylene PORTS SIZE & TYPE MS 24386-4 MS 24385-4
SEAT/SEAL Ethylene propylene
PORTS, SIZE & TYPE MS 24386-4, MS 24385-4
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 160 °F
PERALING TEMPERATURE RANGE -20 to 160 F
VIRPATION PANDOM
VIBRATION, RANDOM
SINE ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P58-717 (GE P/N 47C14003)
DESCRIPTION Shutoff valve
QUALIFICATION STATUS Biosatellite capsule (General Electric)
PROPELLANT/FLUID
PRESSURE, OPERATING 20 psig
PROOF
BURST
DROP BY ON
RATED FLOW
T EN VACE TAMEDANT
MASS EXTERNAL MASS
DIMENSIONS
MATERIAL, BODY 2024-T351 Al alloy
SEAT/SEAL_Buna-N
PORTS, SIZE & TYPE MS 24385-4
INTEGRAL FILTER
INTEGRAL FILTER RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING
VOLTAGE, OPERATING PULL IN/DROP OUT
ELECTRICAL CONNECTION MOUNTING
FIGURITIES.
OPERATING TEMPERATURE RANGE -30 to 125 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
I THE CHILITAN
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIME
REMARKS
KILPIKKO
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P76-717 (GE P/N 47C145477)
DESCRIPTION
QUALIFICATION STATUS BIOSAT capsule reentry system (General Electric)
PROPELLANT/FLUID
DEECCIDE OPERATING 20 5010
PRESSURE, OPERATING 20 psig PROOF
PKOUF.
BURST
DROP
RATED FLOW
TENTAGE TAMEDATAT
LEAKAGE, INTERNAL
EATERNAL
DIMENSIONS
DIMENSTONS_
MATERIAL, BODY 303 CRES
SEAT/SEAL Buna-N
PORTS, SIZE & TYPE MS 24385-4
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING PULL IN/DROP OUT
WATTS CONTINUES OF THE PARTY OF
ELECTRICAL CONNECTION_
MOUNTING
OPERATING THE PARTY OF THE 100 OF
OPERATING TEMPERATURE RANGE 35 to 120 °F
TET DE A DE LE COMMENTANTE DE LA COMMENTANTE DEL COMMENTANTE DE LA COMMENTANTE DE LA COMMENTANTE DE LA COMMENTANTE DE LA COMMENTANTE DEL COMMENTANTE DE LA C
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
I IND. ADDITAD
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER P79-717 (AiResearch P/N 630226)
DESCRIPTION Shutoff valve
QUALIFICATION STATUS Mercury ECS Airlock (AiResearch)
PROPELLANT/FLUID
PRESSURE, OPERATING 250 psig
FROOF
DOMO 1
DIQE
RATED FLOW
LEAKAGE, INTERNAL
EATERNAL
MASSDIMENSIONS
DIMENSIONS
222 MIDD 7.3.1 DODG - 20.0 ODEG
MATERIAL, BODY 303 CRES
SEAT/SEAL Viton
PORTS, SIZE & TYPE AND10050-4
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING PULL IN/DROP OUT
ELECTRICAL CONNECTION_
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 200 °F
OPERATING TEMPERATURE RANGE -20 to 200 F
VIRRATION RANDOM
VIBRATION, RANDOM
SINEACCELERATION
ACCELERATIONSHOCK
SHOCK
LIFE, SERVICE
CYCLE
SHFI F
RELIABILITY
LEAD TIME
LEAD TIME COST
BEMARKS
KLIFAKO
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Circle Seal Controls, Brunswick
PART NUMBER 9213T-2PP
DESCRIPTION Shutoff valve
QUALIFICATION STATUS Apollo (Martin Marietta)
PROPELLANT/FLUID
PRESSURE, OPERATING 150 psi
PROOF
DOMOT
DROP
RATED FLOW
LEAKAGE, INTERNAL
EXIERNAL
MASSDIMENSIONS
DIMENSIONS
MATERIAL, BODY 303 CRES
SEAT/SEAL Neoprene
PORTS, SIZE & TYPE 1/4-in. NPT
INTEGRAL FILTER
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING
PULL IN/DROP OUT
WATTS
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE 0 to 240 °F
VIBRATION, RANDOM
SIME
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Circle Seal Controls list (ref. 10)

MANUFACTURER Consolidated Controls Corporation
PART NUMBER
DESCRIPTION Low flow, torque motor, latching
QUALIFICATION STATUS Intelsat IV and V, ETS-III, MOS-I, Westar,
SynCom, FLTSATCOM, TDRSS, Tiros-N, etc.
PROPELLANT/FLUID N2H4, NTO, GN2
DDECGIDE ODEDATING 200 to 600 pg
PRESSURE, OPERATING 300 to 600 psi PROOF
BURST
DDOD 2 to 05 maid
DROP 3 to 85 psid
RATED FLOW 0.015 to 0.06 lbm/s
LEAKAGE, INTERNAL 1.0 SCCH GN2
EXTERNAL
MASS 0.5 to 1.0 lbm
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE Tube, colinear inlet and outlet
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 8/50 ms
VOLTAGE, OPERATING 28 Vdc
1000 1R/DRO1 001
WATTS 5 to 18
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
SINEACCELERATION
SHOCK
0001.
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS N.C. or N.O. available
DATA SOURCE Consolidated Controls product data booklet - 1986

MANUFACTURER Consolidated Controls Corporation
PART NUMBER
DESCRIPTION Dual-solenoid thruster valve
QUALIFICATION STATUS Intelsat IV and VI, space shuttle, MMS
PROPELLANT/FLUID N2H4, NTO, MMH, GN2, H2O
INOT DEDIPMENT I DOED MEETING INTO THE PROPERTY OF THE PROPERT
PRESSURE, OPERATING 200 to 400 psig
PROOF
BURST
DROP 3 to 30 psid
RATED FLOW
LEAKAGE, INTERNAL 0.5 to 1.0 SCCH GN2
FYTEDNAT.
161 CC
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL
PORTS, SIZE & TYPE Flange mount; tube
TAMEGRAT ELLMED
INTEGRAL FILTER RESPONSE TIME, OPEN/CLOSE 5/20 ms
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT_
WATTS 5 to 30
ELECTRICAL CONNECTION
MOUNTING
ODEDAMINA MEMBERAMINE DANCE OF LA OCO OF
OPERATING TEMPERATURE RANGE 20 to 250 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITYLEAD TIME
COST
REMARKS N.C. or N.O. available; clapper-type valve, series
solenoids
DATA SOURCE Consolidated Controls product data booklet - 1986

MANUFACTURER Consolidated Controls Corporation
PART NUMBER
DESCRIPTION Medium-flow torque motor, latching
QUALIFICATION STATUS Tiros-N, DMSP, COBE
PROPELLANT/FLUID_N2H4, NTO, GN2_
2 11 0 2 D 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
PRESSURE, OPERATING 300 to 600 psi
PROOF
BURST
DROP 8 to 30 psid
RATED FLOW 0.05 to 0.30 lbm/s
I FAVACE INTERNAL 1 0 to 5 0 COCH CN.
LEAKAGE, INTERNAL 1.0 to 5.0 SCCH GN ₂ EXTERNAL
MASS 1.2 to 1.5 lbm
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE Tube; colinear inlet and outlet
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 20/50 ms
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT
ELECTRICAL CONNECTION
MOUNTIN
OPERATING TEMPERATURE RANGE
WIDDATION DANDOM
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIMF
COST N.C. OF N.C. OF N.C. OF N.C.
REMARKS N.C. or N.O. available
DATA SOURCE Consolidated Controls product data booklet - 1986

MANUFACTURER Consolidated Controls Corporation
PART NUMBER DESCRIPTION Single-solenoid thruster valve ONAL PROPERTY CONTROL
DESCRIPTION Single-solenoid thruster valve
QUALIFICATION STATUS Space Shuttle, GRO, Intersat IV and VI,
Peace and Courage
Peace and Courage PROPELLANT/FLUID N2H4, NTO, MMH, GN2, H2O
PRESSURE, OPERATING 200 to 400 psig
PROOF
BURST
DROP 1.5 to 300 psid
DROP 1.5 to 300 psid RATED FLOW 0.001 to 0.30 lbm/s
LEAKAGE, INTERNAL 0.5 to 1.0 SCCH GN2
EXTERNAL
MASS 0.2 to 0.51 lbm
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL
PORTS, SIZE & TYPE Flange mount, tube
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 5/20 ms
MOTERICE OPERATING 20 Mag
VOLTAGE, OPERATING 28 Vdc
TODE IN DROL OUT
WATTS 5 to 30
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE 20 to 250 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS N.C. or N.O. available; clapper type valve
DATA SOURCE Consolidated Controls product data booklet - 1986

MANUFACTURER Consolidated Controls Corporation
PART NUMBER
DESCRIPTION Gas generator valve module
QUALIFICATION STATUS Space shuttle APU
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 0 to 2000 psig
PROOF
BURST
DROP 0 to 500 psid
RATED FLOW 0 to 0.3 lbm/s
LEAKAGE, INTERNAL 18 to 180 SCCH He at 400 psid
EXTERNAL_
MASS 2.5 IDM
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 20/40 ms
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT
WATTS 25 steady state
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SIND
ACCEDERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TI.
COST
REMARKS Torque-motor actuated, dual w/bypass
DATA SOURCE Consolidated Controls product data booklet - 1986

MANUFACTURER Futurecraft Corporation
PART NUMBER 200787-39
MANUFACTURER Futurecraft Corporation PART NUMBER 200787-39 DESCRIPTION Solenoid, dual-coil, two-way
QUALIFICATION STATUS Space shuttle OMS (Aerojet)
PROPELLANT/FLUID GN2
·
PRESSURE, OPERATING 3000 psig
PROOF 6000 psig
PROOF 6000 psig BURST 12,000 psig
DROP
RATED FLOW ESEOD = 0.08 in. min. ($C_D = 0.65$)
LEAKAGE, INTERNAL_
EXTERNAL
MASS 1.25 lbm
DIMENSIONS 5.20 by 3.52 by 1.75 in.
MATERIAL, BODY 6061-T6 Al alloy
SEAT/SEAL Ethylene propylene, Teflon
PORTS, SIZE & TYPE Stub in pad mount
271107 0100 0 1110 0000 111 000 1100011
INTEGRAL FILTER Inlet sintered CRES wire; 6 µm nom., 18 µm abs
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 23 to 32 Vdc
PULL IN/DROP OUT 18/2 Vdc
WATTS 40
ELECTRICAL CONNECTION 1186680-1, -2, -5 (Aerojet)
MOUNTING Pad; four 0.218/0.228-indiam holes on 0.750- by
1.375-in. rectangle
1.3/3-III. lectaryle
OPERATING TEMPERATURE RANGE -40 to 160 °F
OPERATING TEMPERATURE RANGE -40 CO TOO P
VIRDATION PANDOM
VIBRATION, RANDOM
SINE
ACCELERATION SHOCK
DUCK
TIPP CPNITCP
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Futurecraft drawing 200787 - 1985

MANUFACTURER Futurecraft Corporation
PART NUMBER 200788-59, -69
DESCRIPTION Dual coil, three-way
QUALIFICATION STATUS Space shuttle OMS (Aerojet)
PROPELLANT/FLUID_GN2
PRESSURE, OPERATING 450 psig
PROCF 1000 psig BURST 2000 psig
BURST 2000 psig
DROP
RATED FLOW ESEOD = 0.035 and 0.070 in. min. ($C_D = 0.60$)
LEAKAGE, INTERNAL
EXTERNAL
MASS 1.4 1bm
DIMENSIONS 5.60 in. less inlet by 3.12 by 2.47 in.
PAMEDIAL BODY COCI DC 11 -11
MATERIAL, BODY 6061-T6 Al alloy
SEAT/SEAL Ethylene propylene, Teflon
FORTS, SIZE & TYPE 1/4-intube inlet, pad-mounted stub outlet,
threaded vent port INTEGRAL FILTER Inlet - CRES sintered wire; 6 μm nom., 18 μm abs
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 23 to 32 Vdc
PULL IN/DROP OUT 18/2 Vdc
WATTS 40
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet)
WATTS 40
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet)
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in.
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet)
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST
WATTS 40 ELECTRICAL CONNECTION 1186680-3, -4, -5, -6, -8 (Aerojet) MOUNTING Pad; four 0.155-indiam holes at 1.000 by 1.250 in. OPERATING TEMPERATURE RANGE 0 to 160 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE SHELF RELIABILITY LEAD TIME COST

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MANUFACTURER Futurecraft Corporation
PART NUMBER 200851
DESCRIPTION Solenoid, dual, two-way, N.C.
QUALIFICATION STATUS Space shuttle OMS (Aerojet)
PROPELLANT/FLUID GN2
PRESSURE, OPERATING 450 psig
PRESSURE, OPERATING 450 psig
PROOF 900 psig BURST 1800 psig min.
DROP
RATED FLOW ESEOD = 0.08 in. min. ($C_D = 0.65$)
RATED FEON EBEOD = 0.00 III. MIII. (C) = 0.007
LEAKAGE, INTERNAL
EXTERNAL
MASS 2.13 lbm
DIMENSIONS 5.56 by 1.30 by 6.5 in.
MATERIAL, BODY 6061-TE Al alloy
SEAT/SEAL Ethylene propylene, Teflon
PORTS, SIZE & TYPE Redundant sealed bayonet inlet, four-bolt
flange outlet
INTEGRAL FILTER Inlet sintered CRES wire; 6 μm nom., 18 μm abs
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 23 to 32 Vdc
PULL IN/DROP OUT 18/2 Vdc
WATTS 40
ELECTRICAL CONNECTION 1186680-2, -5 (Aerojet)
MOUNTING Pad; four 0.218/0.228-indiam holes on 1.625- by
3.500-in. rectangle
OPERATING TEMPERATURE RANGE -40 to 160 °F
MIDDAGION DANDOM
VIBRATION, RANDOM
SINEACCELERATION
SHOCK
DIOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Futurecraft drawing 200851 - 1985

MANUFACTURER Futurecraft Corporation PART NUMBER 200916
DESC.IPTION Latching, solenoid
QUALIFICATION STATUS Teal Ruby (Rockwell)
PROPELLANT/FLUID GN2, GHe, others
PRESSURE, OPERATING 85 psig
PROOF 128 psig
BURST 9555 psia
DROP ON A CONTROL OF THE CONTROL OF
RATED FLOW 0.0093 lbm/s GN2
T DAVA CIE TAMBETIATA I
LEAKAGE, INTERNAL
EXTERNAL MASS 2.63 lbm
DIMENSIONS 5.31 by 4.28 by 1.88 in.
MATERIAL, BODY 304L CRES
CENT/CENT Wofler
PORTS, SIZE & TYPE 3/8-in. tubes
INTEGRAL FILTER 304 CRES RIGIMESH 30 to 55 µm
RESPONSE TIME, OPEN/CLOSE 1/2 cycle; 80 ms max.
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT 18/18 Vdc
WATTS 52.3 max.
ELECTRICAL CONNECTION Number-22 M81044/12 lead wires
MOUNTING Clamp
OPERATING TEMPERATURE RANGE -22 to 160 °F
VIDBATION BANDOM
VIBRATION, RANDOM_
SINE
ACCELERATION
SINE
ACCELERATION SHOCK
ACCELERATION SHOCK LIFE, SERVICE 5000 min.
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE 3HELF
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE SHELF RELIABILITY
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE 3HELF
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE 3HELF RELIABILITY LEAD TIME
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE SHELF RELIABILITY LEAD TIME COST
ACCELERATION SHOCK LIFE, SERVICE 5000 min. CYCLE SHELF RELIABILITY LEAD TIME COST

MANUFACTURER The Marquardt Company
PART NUMBER 234883-502, 234884-502
DESCRIPTION Solenoid open, spring return, thruster
QUALIFICATION STATUS Space shuttle vernier thrusters
PROPELLANT/FLUID NTO, MMH
PRESSURE, OPERATING 264 psig
PROOF
BURST
DROP 40 psid max.
RATED FLOW
LEAKAGE, INTERNAL 50 SCCH max. He
EXTERNAL
MASS 0.65 lbm
DIMENSIONS 3.12 in. by 1.38 in. diam
MATERIAL, BODY SEAT/SEAL PORTS, SIZE & TYPE
SEAT/SEAL_
PORTS, SIZE & TYPE
THURSDAY BY BY
INTEGRAL FILTER 25 µm abs RESPONSE TIME, OPEN/CLOSE 12/7 ms nom.
RESPONSE TIME, OPEN/CLOSE 12// ms nom.
VOLTAGE, OPERATING 18 to 32 Vdc
PULL IN/DROP OUT
WATTS 16.5 nom. ELECTRICAL CONNECTION
ELECTRICAL CONNECTION
MOUNTING
ODEDAMING MEMORDAMIDE DANGE Me 225 OF
OPERATING TEMPERATURE RANGE To 225 °F
VIDDATION DANDOM 200 rms
VIBRATION, RANDOM 28g rms
ACCELERATION 5g SHOCK 1.5g
BHOCK 1.39
LIFE, SERVICE 10 yr
CYCLE 500,000 min.
SHELF
RELIABILITY LEAD TIME
COST
REMARKS
DATA SOURCE Marguardt report (ref. 12)

MANUFACTURER Moog Inc.
PART NUMBER 50-353
DESCRIPTION Redundant seat, torque motor, thruster valve
QUALIFICATION STATUS Moog R&D, none known
FROPELLANT/FLUID N2H4
PRESSURE, OPERATING 250 psig
PROOF
BURST
DROP 16 psid RATED FLOW 0.025 lb/s
RATED FLOW 0.025 lb/s
LEAKAGE, INTERNAL 1.0 SCCH max.
EXTERNAL
MASS 0.82 IDM
DIMENSIONS
16 A Main T A F MAINS
MATERIAL, BODY
SEAT/SEAL Teflon
PORTS, SIZE & TYPE
INTEGRAL FILTER 20 µm nom., 35 µm abs
RESPONSE TIME, OPEN/CLOSE 5.5/5.5 ms
VOLTAGE OPERATING 24 to 32 Vdc
VOLTAGE, OPERATING 24 to 32 Vdc PULL IN/DROP OUT
WATTS 21.3 max.
ELECTRICAL CONNECTION
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 5-lbf thruster
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 50X366
DESCRIPTION Torque motor, thruster valve
QUALIFICATION STATUS ATS - Moog
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 350 psig
PROOF
BURST
DROP 12 psid RATED FLOW 0.0025 lb/s
RATED FLOW 0.0025 lb/s
201242 2 2011
LEAKAGE, INTERNAL 5.0 SCCH max.
EXTERNAL.
EXTERNAL MASS 0.40 lbm
DIMENSIONS
MATERIAL, BODY
CEAM/CEAL Woflen
PORTS, SIZE & TYPE
TAMBOT I FILMED 10 .m nom 25 .m obc
INTEGRAL FILTER 10 µm nom., 25 µm abs
RESPONSE TIME, OPEN/CLOSE 1/1 ms
VOLTAGE, OPERATING 18 to 32 Vdc
PULL IN/DROP OUT
WATTS 7.9 ELECTRICAL CONNECTION
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 0.5-lbf thruster
DATA SOURCE Moog catalog - 1984

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MANUFACTURER Moog Inc.
PART NUMBER 50-391
DESCRIPTION
QUALIFICATION STATUS Grand Tour (Rocket Research)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 400 psig
PROOF
BURST
DROP 5 psid
RATED FLOW 0.0005 lb/s
LEAKAGE, INTERNAL 1.0 SCCH max.
EXTERNAL MAGE 0 20 lbm
MASS U.ZU IDM
DIMENSIONS
MATERIAL DANY
SEAT/SEAL Teflon
PORTS, SIZE & TYPE
INTEGRAL FILTER 5 μm nom., 15 μm abs RESPONSE TIME, OPEN/CLOSE 10/10 ms
RESPONSE TIME, OPEN/CLOSE 10/10 ms
VOLTAGE. OPERATING 24 to 32 VQC
FOLL IN DROP OUT
WAITS IU NAX.
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
OINE
ACCEDERATION
SHOCK
I TEE CEDUICE
LIFE, SERVICE CYCLE
SHELF
DELIYDIL LAA
LEAD TIME
COST
REMARKS 0.1-lof thruster
DAMA COURCE Many and lane 1004
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 50-438
DESCRIPTION Redundant solenoid thruster valve
QUALIFICATION STATUS FLTSATCOM (Hamilton Standard)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 210 psig
PROOF
BURST
DROP 4 psid
RATED FLOW 0.0005 lb/s
LEAKAGE, INTERNAL 5.0 SCCH max.
MASS 0 80 lbm
PROS U. 60 IUII
DIMENSIONS_
MA MUDITAT DADY
MATERIAL, BODY
SEAT/SEAL Teflon
PORTS, SIZE & TYPE
INTEGRAL FILTER 10 µm nom., 25 µm abs
DECDONCE TIME OPEN /CLOSE 12/17 mg
RESPONSE TIME, OPEN/CLOSE 12/17 ms
VOLTAGE, OPERATING 18 to 28 Vdc
PULL IN/DROP OUT
ELECTRICAL CONNECTION_
MOUNTING

OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 0.1-lbf thruster
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 51-109
DESCRIPTION Solenoid thruster valve
QUALIFICATION STATUS MJS (Rocket Research)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 420 psig
PROOF
BURST
DROP 5 psid
RATED FLOW 0.0009 lb/s
LEAKAGE, INTERNAL 2 SCCH
EXTERNAL
MASS 0.24 1bm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL AFE-411
PORTS, SIZE & TYPE
INTEGRAL FILTER 25 um abs
RESPONSE TIME. OPEN/CLOSE 8/6 ms
VOLTAGE, OPERATING 24 to 34 Vdc
PULL IN/DROP OUT
WATTS 5.4 max.
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 0.2-1bf thruster
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 51E110
DESCRIPTION Solenoid thruster valve
QUALIFICATION STATUS MJS (Bell)
PROPELLANT/FLUID_N2H4
PRESSURE, OPERATING 420 psig
PROOF_
FURST
DROP 5 psid RATED FLOW 0.0009 lb/s
RATED FLOW 0.0009 lb/s
LEAKAGE, INTERNAL 2 SCCH
EXTERNAL
MASS 0.24 lbm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL AFE-411
PORTS, SIZE & TYPE
INTEGRAL FILTER 25 µm abs
RESPONSE TIME, OPEN/CLOSE 8/6 ms
VOLTAGE, OPERATING 24 to 34 Vdc
PULL IN/DROP OUT
MANUE 6 / Mat
ELECTRICAL CONNECTION_
MOINTING
MOUNTING
OPERATING TEMPERATURE RANGE
OFEIGHTING TEMFERGATORE IGNOU
VIEDATION DANDOM
VIBRATION, RANDOM
SINE SINE
ACCELERATIONSHOCK
SHOCK
וודד פרסוורים
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 0.2-lbf thruster
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 51-122A
DESCRIPTION Series redundant solenoid thruster valve
QUALIFICATION STATUS 8623 (TRW)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 310 psig
PROOF
BURST
DROP 10 psid
RATED FLOW 0.005 lb/s
LEAKAGE, INTERNAL 0.5 SCCH
EXTERNAL MAGGIORE
MASS 0.54 1bm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL AFE-411
PORTS, SIZE & TYPE
INTEGRAL FILTER 10 µm nom., 15 µm abs
RESPONSE TIME, OPEN/CLOSE 37/20 ms
VOLTAGE, OPERATING 23 to 38 Vdc
PULL IN/DROP OUT
WATTS 12 max.
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE_
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 1-1bf thruster
DATA SOURCE Moog catalog - 1984

MANUFACTURER Moog Inc.
PART NUMBER 51-128
PART NUMBER 51-128 DESCRIPTION Series redundant
QUALIFICATION STATUS
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 350 psig
PROOF 1150 psig
BURST 1700 psig
DROP 30 psid
RATED FLOW 0.0027 lb/s
LEAKAGE, INTERNAL 3.0 SCCH GN2 max.
EXTERNAL 1x10 ⁻⁶ SCCS GHe
MASS 0.45 lbm max.
DIMENSIONS 3.29 in. LOA; 0.88 in. diam plus flange, inlet, and
wires
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE Inlet, 0.25-in. diam tube; outlet, three-bolt
flange
INTEGRAL FILTER 20 µm abs
RESPONSE TIME, OPEN/CLOSE 10/10 ms
VOLTAGE, OPERATING 22 to 34 Vdc
PULL IN/DROP OUT 16/1.5
WATTS 15.46 max.
ELECTRICAL CONNECTION Free leads
MOUNTING Three-bolt flange; 1.0-indiam BC, EQ SP holes
OPERATING TEMPERATURE RANGE Fluid, 40 to 140 °F; ambient, 40 to
300 °F
VIBRATION, RANDOM No GN ₂ leakage at 43g rms w/50 psi inlet
SINE_
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 1,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAMA GOVERGE Management 1004
DATA SOURCE Moog catalog - 1984

PART NUMBER 5720002 DESCRIPTION Solenoid, 0.5 lbf thruster valve, N.C. QUALIFICATION STATUS Classified program PROPELLANT/FLUID N2H4 PRESSURE, OPERATING 255 psig PROOF BURST DROP RATED FLOW Effective flow area, 0.0000131 in. 2 LEAKAGE, INTERNAL
QUALIFICATION STATUS Classified program PROPELLANT/FLUID N2H4 PRESSURE, OPERATING 255 psig PROOF BURST DROP RATED FLOW Effective flow area, 0.0000131 in.2 LEAKAGE, INTERNAL
PROPELLANT/FLUID N2H4 PRESSURE, OPERATING 255 psig PROOF BURST DROP RATED FLOW Effective flow area, 0.0000131 in.2 LEAKAGE, INTERNAL
PRESSURE, OPERATING 255 psig PROOF
PRESSURE, OPERATING 255 psig PROOF
PROOF BURST DROP RATED FLOW Effective flow area, 0.0000131 in. ² LEAKAGE, INTERNAL
PROOF BURST DROP RATED FLOW Effective flow area, 0.0000131 in. ² LEAKAGE, INTERNAL
DROP RATED FLOW Effective flow area, 0.0000131 in.2 LEAKAGE, INTERNAL
DROP RATED FLOW Effective flow area, 0.0000131 in.2 LEAKAGE, INTERNAL
RATED FLOW Effective flow area, 0.0000131 in.2 LEAKAGE, INTERNAL
LEAKAGE, INTERNAL
EVMEDATA I
EXTERNAL MASS 0.21 lbm
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL_Teflon
PORTS, SIZE & TYPE
20110) Didd v III
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 4.2/3.0 ms at 170 psig and 70 °F
VOLTAGE, OPERATING 21 Vdc min.
PULL IN, DROP OUT 3 Vdc drop out
WATTS 4.6 min.
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE Fluid, 35 °F min.; ambient, 250 °F
max.
VIBRATION, RANDOM 18.8g rms
SINE_
ACCELERATION
SHOCK
I TEE CEDUICE
LIFE, SERVICE CYCLE 1,500,000 min.
SHELF
DELIABLITUS
LEAD TIME
COST
REMARKS
DATA SOURCE Parker Aerospace product data sheet - 1984

MANUFACTURER Parker Hannifin
PART NUMBER 5720004 "Peanut valve"
DESCRIPTION Miniature latching solenoid
QUALIFICATION STATUS Viking Lander Biology Experiment (flown)
HEAO-B, HPG8DA (flown)
PROPELLANT/FLUID
PRESSURE, OPERATING 0 to 175 psig
PROOF
BURST
DROP
RATED FLOW Effective flow area, 0.000148 in.2
LEAKAGE, INTERNAL 1x10 ⁻⁶ SCCH He
EXTERNAL
MASS 0.018 lbm
DIMENSION: 0.8 in. length by # 0.5 in. diam
MATERIAL, BODY
SEAT/SEAL Ethylene propylene
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 1.5/1.5 ms
VOLTAGE, OPERATING 28 to 32 Vdc
PULL IN/DROP OUT
WATTS 9 max.
ELECTRICAL CONNECTION
MOUNTING Bolt to manifold, valve seat in manifold
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM 700g peak to unlatch
SINE
ACCELERATION
SHOCK
LIFE, SER. CE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Latch magnetically in both directions; polarity shift to
open/close
DATA SOURCE Darker Aerospace product data sheet - 1984

MANUFACTURER Parker Hannifin
PART NUMBER 5720048 "Walnut valve"
DESCRIPTION Miniature latching solenoid
QUALIFICATION STATUS Viking GCMS
PROPELLANT/FLUID
PRESSURE, OPERATING 0 to 1000 psig
PROOF_
BURST
DROP
RATED FLOW Effective flow area, 0.000198 in.2
LEAKAGE, INTERNAL 1x10 ⁻⁶ SCCH He
EXTERNAL
MASS 0.090 1bm
DIMENSIONS ≅ 1.25 in. length by 0.5 in. diam by 0.8 in. wide
MATERIAL, BODY
SEAT/SEAL
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 1 to 2/1 to 2 ms
VOLTAGE, OPERATING 8 Vdc nom., current driver
PULL IN/DROP OUT
WATTS 20 max.
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE
UTDDAMION DANDON 400m mode to unlately
VIBRATION, RANDOM 400g peak to unlatch
SINE SINE
ACCEDERATION
SHOCK
TIES OFFICE
LIFE, SERVICE
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS Latches magnetically in both directions; polarity reversal
for open/open
DAMA COUNCE Devices Assessment and device data about 1004
DATA SOURCE Parker Aerospace product data sheet - 1984

MANUFACTURER Valcor Engineering Corporation
PART NUMBER V27200-195
DESCRIPTION Isolation valve
QUALIFICATION STATUS USAF classified reentry vehicle
PROPELLANT/FLUID N2H4, NTO
EKOEFIDEMIAL HOID WSuff valo
PRESSURE, OPERATING 295 psia (203 N/cm ²)
PROOF 615 psia (424 N/cm ²)
BURST 915 psia (630 N/cm²)
DROP
RATED FLOW
TENTAGE TAMEDATAL OLD COCK ALL OLD COCK ALL
LEAKAGE, INTERNAL 015 SCCH N ₂ H ₄ at 295 psia EXTERNAL Zero
MACC 0.5 lbm (0.2 kg)
MASS 0.5 lbm (0.2 kg)
DIMENSIONS
MATERIAL, BODY CRES
SEAT/SEAL CRES/Teflon
PORTS, SIZE & TYPE 1/4 in.
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 10/10 ms
VOLTAGE, OPERATING 28 Vdc
DITE ON THE STORY
WATTS 56 at 28 Vdc and 70 °F
ELECTRICAL CONNECTION
MOUNTING
OPERATING TEMPERATURE RANGE -20 to 165 °F (-28 to 73.8 °C)
Of Brest Ino Third Brest of Teach 1 (20 CO 75.0 C)
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE IITRI lists (ref. 8)
V VVV 444 44VVV (4V

MANUFACTURER Valcor Engineering Corporation
PART NUMBER V27200-411
DESCRIPTION Propellant isolation
QUALIFICATION STATUS USAF classified project (Hamilton Standard)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 576 psia (397 N/cm ²)
PROOF 857 psia (590 N/cm ²)
BURST 1193 psia (822 N/cm ²)
DROP
RATED FLOW
LEAKAGE, INTERNAL 20 SCCH N2 at 561 psia
EXTERNAL 5x10 ⁻⁶ SCCS He at 561 psia
MASS 0.6 lbm (0.2 kg)
DIMENSIONS
MATERIAL, BODY 304 CRES
SEAT/SEAL Teflon
PORTS, SIZE & TYPE Face seals
·
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING
PULL IN/DROP OUT
ELECTRICAL CONNECTION_
MOUNTING
OPERATING TEMPERATURE RANGE 40 to 160 °F (4 to 71 °C)
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
1.775 APPLITAR
LIFE, SERVICE
CYCLESHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAMA COUNCE TIMET links (wof 0)
DATA SOURCE IITRI lists (ref. 8)

C-4

MANUFACTURER Valcor Engineering Corporation
PART NUMBER V27200-520
DESCRIPTION Coaxial solenoid isolation valve
QUALIFICATION STATUS Apollo, shuttle
PROPELLANT/FLUID Pneumatic, water
INCLUDING LICENSCIO, WOOL
PRESSURE, OPERATING 43 psia (29 N/cm ²)
PROOF
BURST 90 psia (62 N/cm ²)
DROP
RATED FLOW
LEAKAGE, INTERNAL EXTERNAL MASS 0.25 lbm (0.15 kg)
MASS 0.35 lbm (0.15 kg)
DIMENSIONS
*WARRIAL. BODY
SEAT/SEAL Buna-N
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 20/15 ms
VOLTAGE, OPERATING 22 to 32 Vdc
PULL IN/DROP OUT WATTS 20
ELECTRICAL CONNECTION
MOUNTING
MOUNTING
والمنافظ المسيدة المستديد والمستديد
OPERATING TEMPERATURE RANGE 0 to 150 °F (255 to 338 K)
VIBRATION, RANDOM_
SINE
ACCEDERATION
SHOCK
TTEE CENTICE
LIFE, SERVICE CYCLE 100,000
CYCLE 100,000 SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
KEITHKINO
DATA SOURCE Aerospace Corporation report (ref. 9)

MANUFACTURER Wright Components, Inc.
PART NUMBER 12240
DESCRIPTION_ Solenoid, two-way N.C.
QUALIFICATION STATUS Shuttle APU (Sunstrand), flown
PROPELLANT/FLUID GN2
PRESSURE, OPERATING 0 to 315 psia; 315 to 340 psia nonoperating
PROOF 600 psig
BURST 1200 psig
DROP 0.8 psid
RATED FLOW FEOD = 0.19 to 0.23 in.; $C_{7} = 0.61$ at 70 °F
TUNKAGE: TAMBUNAT 1-10-6 CCCU Uo
LL'AKAGE, INTERNAL 1x10-6 SCCH He
EXTERNAL 1x10 ⁻⁶ SCCH He MASS 0.43 lbm
DIMENSIONS 3.655 by 1.02 by 1.02 in.; body, 0.880 in. diam
MATERIAL, BODY 430 and 304 CRES
SEAT/SEAL_Viton
PORTS, SIZE & TYPE Special coaxial inlet and outlet
FORIS, STAB & TITE OPECIAL COUNTRY INTEC AND OUCLEC
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 40/40 ms
VOLTAGE, OPERATING 21.3 to 31
PULL IN/DROP OUT 18/1.0 Vdc
WATTS 3.4
ELECTRICAL CONNECTION NB3H8-98N/MSFC40M39569C
MOUNTING Four EQ SP holes on 0.79-in. square
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELFRATION
SHOCK
LIFE, SERVICE
CYCLE 250,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Duty cycle - 30 s on, 5 min off (continuous)
DATA SOURCE Wright Components catalog - 1984

MANTIER CHILDED Weight Components Inc
MANUFACTURER Wright Components, Inc.
PART NUMBER 15398-1, -2, -3, -4
DESCRIPTION Pulse coaxial solenoid, N.C.
QUALIFICATION STATUS ATS (Avco), flown
PROPELLANT/FLUID NH3
PROPERTY NILL TO ID NUS
DERGGIDE ODERAMING O to 200 maig
PRESSURE, OPERATING 0 to 300 psig
PROOF 450 psig
BURST 750 psig
DROP
RATED FLOW 10^{-5} lbm/s gas at 8 psia (-1, -3), 10^{-6} lbm/s at
50 psia (-2, -4)
LEAKAGE, INTERNAL 6x10 ⁻⁶ SCCS He
EXTERNAL 1x10-6 SCCS He
MASS 0.34 lbm
DIMENSIONS 2.00 in. LOA, 0.96 in. height and width
MARINED TAT DANY
MATERIAL, BODY
SEAT/SEAL Ethylene propylene 515-8
PORTS, SIZE & TYPE Four-bolt flange mount, both ends
TAMPADAL BILDD
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING 24 (18 to 28) Vdc
PULL IN/DROP OUT 18/6 Vdc
WATTS 1 at 24 Vdc and 70 °F
ELECTRICAL CONNECTION Free leads
MOUNTING 0.128/0.133-indiam holes, four each EQ SP on 1.045-in.
BC, both ends
OPERATING TEMPERATURE RANGE Fluid, 95 to 125 °F; ambient, 0 to 125 °F
VIBRATION, RANDOM 45g sustained
SINE
ACCELERATION 30q
SHOCK
LIFE, SERVICE 2000 hr or 5 yr
CYCLE 25,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Seat diam, 0.018 in. (for -1, -3); 0.01 in. (for -2, -4)
DATA SOURCE Wright Components catalog - 1984

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MANUFACTURER Wright Components, Inc.
PART NUMBER 15447
DESCRIPTION Pulse coaxial solenoid, N.C.
QUALIFICATION STATUS NRL Radiation (NRL), flown
PROPELLANT/FLUID_GNH3
PRESSURE, OPERATING 350 psig
PROOF
BURST
DROP
RATED FLOW 0.2 SCFM air
LEAKAGE, INTERNAL 2x10-6 SCCS He
EXTERNAL 2x10 ⁻⁶ SCCS He
MASS 0.35 1bm
DIMENSIONS
MATERIAL, BODY 303 CRES
SEAT/SEAL EPR 515-8
PORTS, SIZE & TYPE
TAYMANA T. BIL MID
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING 24 PULL IN/DROP OUT 12/6 Vdc
WATTS 3
WATTS 3 ELECTRICAL CONNECTION PT1H-8-2P
MOUNTING
OPERATING TEMPERATURE RANGE
OFERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
SINE
ACCELERATION_SHOCK
LIFE, SERVICE
CYCLE 2,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15457 (-2, -5)
DESCRIPTION Pulse coaxial solenoid, N.C.
QUALIFICATION STATUS IMP (NASA), flown; NRL Radiation (Avco),
flown
PROPELLANT/FLUID CF ₄ (-2), NH ₃ (-5)
PRESSURE, OPERATING 60 psig
PROOF
BURST
DROP
RATED FLOW 1.4 SCFM air
LEAKAGE, IN ERNAL 6x10 ⁻⁵ SCCS He
EXIERNAL Same as internal
MASS 0.25 1bm
DIMENSIONS
MATERIAL, BODY 300 series CRES
SEAT/SEAL Neoprene (for -2), EPR 515-8 (for -5)
PORTS, SIZE & TYPE
INTEGRAL FILTER Yes; 300 series CRES
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING 26 Vdc
PULL IN/DROP OUT 20/5 Vdc
WATTS 2
ELECTRICAL CONNECTION Free leads
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 25,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15548
DESCRIPTION Pulse coaxial solenoid, N.C.
QUALIFICATION STATUS NRL Radiation (JPL), flown
PROPELLANT/FLUID NH3
DESCRIPE OPERATING 0 to 250 point
PRESSURE, OPERATING 0 to 350 psig
PROOF 450 psig BURST 750 psig
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DAMED BLOW A 2 CCEM Six
RATED FLOW U.2 SCFM all
LEAKAGE, INTERNAL 2×10 ⁻⁶ SCCS He
EXTERNAL Same as internal
MASS 0.27 lbm
DIMENSIONS 1.625 by 0.95 by 1.854 in.
MATERIAL, BODY 302, 304, 347, 430 CRES SEAT/SEAL Ethylene propylene 515-8
SEAT/SEAL Ethylene propylene 515-8
PORTS, SIZE & TYPE Flanges
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING 24 Vdc (22 to 26 Vdc)
PULL IN/DROP OUT 16/5 Vdc
WATTS 3
ELECTRICAL CONNECTION PTDH-8-2P
MOUNTING Two flanges; 4-40 UNC-2B holes on 1.000-in. BC
(inlet and outlet)
OPERATING TEMPERATURE RANGE 32 to 140 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 5 yr
CYCLE 2,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA COURCE Wright Components datalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15548-2
DESCRIPTION Pulse coaxial solenoid, N.C.
C. ALIFICATION STATUS Solrad-X (NRL), flown
PROPELLANT/FLUID N ₂ H ₄
PRESSURE, OPERATING 0 to 350 psig
PROOF 450 psig
BURST 750 psig
DROP
DROPRATED FLOW_ 0.2 SCFM air
LEAKAGE, INTERNAL 2x10 ⁻⁶ SCCS He
EXTERNAL Same as internal
MASS 0.30 1bm
DIMENSIONS 1.625 by 0.95 by 1.854 in.
MATERIAL, BODY 302, 304, 347, 430 CRES
SEAT/SEAL Ethylene propylene 515-8
PORTS, SIZE & TYPE Flanges
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/15 ms
VOLTAGE, OPERATING 24 Vdc (22 to 26 Vdc)
PULL IN/DROP OUT 16/4 Vdc
WATTS 3
ELECTRICAL CONNECTION PT1H-8-2P
MOUNTING Two flanges; 4-40 UNC-2B holes on 1.000-in. BC
(inlet and outlet)
1 2000 00000
OPERATING TEMPERATURE RANGE 32 to 140 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 5 yr
CYCLE 2,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
TOTAL BANK
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15554
DESCRIPTION Pulse coaxial solenoid
QUALIFICATION STATUS DISCOS (Avco), flown
PROPELLANT/FLUID CF ₄ (Freon 14), GN ₂
PRESSURE, OPERATING 0 to 45 psig
PROOF 68 psig
BURST 180 psig
DROP 1 psid at 15 psia RATED FLOW 2.3x10 ⁻⁵ lb/s Freon 14
LEAKAGE, INTERNAL 3x10 ⁻⁵ SCCS GN ₂ EXTERNAL Same as internal
FYTERNAL Same as internal
MASS 0.28 lbm
DIMENSIONS 1.656 by 0.952 by 1.360 in.
DIMENSIONS 1.000 DY 0.932 DY 1.300 III.
MATERIAL, BODY 300 and 400 series CRES
SEAT/SEAL Ethylene propylene 515-8
PORTS, SIZE & TYPE Four-bolt flanges
TORID, DIEB & TITE TOUR DOTC FRANÇO
INTEGRAL FILTER 5 um nom. at inlet and outlet
RESPONSE TIME. OPEN/CLOSE 50/50 ms
INTEGRAL FILTER 5 µm nom. at inlet and outlet RESPONSE TIME, OPEN/CLOSE 50/50 ms VOLTAGE, OPERATING 20 to 31 Vdc
VOLTAGE, OPERATING 20 to 31 Vdc PULL IN/DROP OUT 16/1.5 Vdc
WATTS 1.12 at 28 Vdc
ELECTRICAL CONNECTION Free leads
MOUNTING Four 0.12-indiam holes on 1.172 by 1.469-in. base
110011110 1001 0110 1111 0100 011 11110 2111 0000
OPERATING TEMPERATURE RANGE -20 to 120 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 2 yr
CYCLE 3,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DAMA COUNCE Wright Components caralog - 1994

MANUFACTURER Wright Components, Inc.
PART NUMBER 15607-2
DESCRIPTION Pulse coaxial solenoid, pneumatic N.C.
QUALIFICATION STATUS LES 8/9 (TRW), flown
De Abril 2 sem /mr tyr D. 1771
PROPELLANT/FLUID NH3
PRESSURE, OPERATING 225 psig
PROOF BURST
DOMOI
DIOI
RATED FLOW
LEAKAGE, INTERNAL 1x10-6 SCCS He
EXTERNAL 8x10 ⁻⁶ SCCS He
MASS 0.25 1bm
DIMENSIONS 2.03 in. by 0.96 in.2
MATERIAL, BODY
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE 0.343 in. o.d.
INTEGRAL FILTER 50 μm nom. inlet and outlet
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT 20/5 Vdc
WATTS 2 at 26 Vdc
ELECTRICAL CONNECTION Free leads
MOUNTING Four 0.13-indiam holes EQ SP on 1.045-in. diam. BC
at both ends
OPERATING TEMPERATURE RANGE
STERRANT BANDAY
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 5 yr w/2000 hr powered CYCLE 2,000,000
SHELF
DELIABILITY
LEAD TIME
COST
REMARKS
REPURNO
DATA SOURCE Wright Components datalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15607-3
DESCRIPTION Pulse coaxial solenoid, pneumatic, N.C.
QUALIFICATION STATUS HEAO (NASA)
PROPELLANT/FLUID Propane
PRESSURE, OPERATING 280 psig
PROOF
BURSTDROP
RATED FLOW 1.2x10 ⁻⁴ lbm/s
RATED FLOW 1.2XIV - IDM/S
LEAKAGE, INTERNAL 1x10 ⁻⁶ SCCS He
LEAKAGE, INTERNAL 1x10-6 SCCS He EXTERNAL Same as internal
MASS 0.25 1bm
DIMENSIONS 2.03 by 0.96 by 0.96 in.
NAMED TAL DODY
MATERIAL, BODY
SEAT/SEAL Fluorosilicone PORTS, SIZE & TYPE 0.343 in. o.d.
PORIS, SIZE & TIPE U.343 III. U.U.
INTEGRAL FILTER 50 µm nom., inlet and outlet
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT 20/5 Vdc
WATTS 2 at 26 Vdc
ELECTRICAL CONNECTION Free leads
MOUNTING Four 0.13-indiam holes EQ SP on 1.045-indiam BC at
both ends
OPERATING TEMPERATURE RANGE
VIRRATION PANDOM
VIBRATION, RANDOMSINE
SINEACCELERATION
SHOCK
LIFE, SERVICE 5 yr w/2000 hr powered
CYCLE 350,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS

MANUFACTURER Wright Components, Inc.
PART NUMBER 15607-4
DESCRIPTION Pulse coaxial solenoid, pneumatic, N.C.
QUALIFICATION STATUS HEAO (NASA), flown
PROPELLANT/FLUID Propane
PRESSURE, OPERATING 40 psig
PROOFBURST
DROR
DROP
RATED FLOW
LEAKAGE, INTERNAL 1x10-6 SCCS He
EXTERNAL Same as internal
16% CC
DIMENSIONS 2.03 by 0.96 by 0.96 in.
DIFFERENCE 2.00 By 0.00 By 0.00 III.
MATERIAL, BODY
SEAT/SEAL Fluorosilicone
DODGE CLAR CACOR B 303 IN VO
PORIS, SIZE & TIPE U.343 III. U.U.
INTEGRAL FILTER 50 µm nom., inlet and outlet
RESPONSE TIME, OPEN/CLOSE
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT 20/5 Vdc
WATTS 2 at 26 Vdc
ELECTRICAL CONNECTION Free leads
MOUNTING Four 0.13-indiam holes EQ SP on 1.045-indiam BC at
both ends
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 5 yr w/2000 hr powered
CYCLE 250,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Wright Components catalog - 1984
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MANUFACTURER Wright Components, Inc.
PART NUMBER 15617-3
DESCRIPTION Pulse coaxial solenoid
QUALIFICATION STATUS CTS (Hamilton Standard), flown
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 396 psig
DROOF 594 nsig
PROOF 594 psig BURST 1584 psig
DROP
RATED FLOW 0.0005 1bm/s
LEAKAGE, INTERNAL 2x10 ⁻⁶ SCCS He EXTERNAL 1x10 ⁻⁶ SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.17 lbm (not including lead wires)
DIMENSIONS 2.51 in. by 0.875 in. diam
MATERIAL, BODY 302, 304, 347, or 430 CRES
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE
INTEGRAL FILTER
INTEGRAL FILTER RESPONSE TIME, OPEN/CLOSE 8/10 ms
VOLIAGE, OPERATING 28 VGC (25 to 29 VGC)
PULL IN/DROP OUT 16/2 Vdc
WATTS 5
ELECTRICAL CONNECTION Free leads
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION. RANDOM
VIBRATION, RANDOM SINE
ACCELERATION
SHOCK_
LIFE, SERVICE 3 yr
CYCLE 1,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOUDCE Wright Components datalog - 1994

MANUFACTURER Wright Components, Inc.
PART NUMBER 15617-5
DESCRIPTION Pulse coaxial solenoid
QUALIFICATION STATUS BSE (Hamilton Standard), flown
PROPELLANT/FLUID_N2H4_
PRESSURE, OPERATING 400 psig
PROOF 594 psiq
BURST 1584 psig
DROP
DROP
LEAKAGE, INTERNAL 2x10 ⁻⁶ SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.17 lbm (not including lead wire)
DIMENSIONS 2.5 in. by 0.875 in. diam
MARRIDIAL BODY 200 204 247 A20 CREC
MATERIAL, BODY 302, 304, 347, or 430 CRES
SEAT/SEAL AF-E-102
PCRTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 8/10 ms
VOLTAGE, OPERATING 28 Vdc (25 to 29 Vdc)
PULL IN/DROP OUT 16/2 Vdc
WATTS 5.7
ELECTRICAL CONNECTION Free leads
MOUNTING
FROMITAC
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 3 yr
CYCLE 500,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA COURCE Wright Components astalog - 1004

MANUFACTURER Wright Components, Inc.
PART NUMBER 15626-2
DESCRIPTION Pulse coaxial solenoid, N.C.
QUALIFICATION STATUS Solrad X1, classified program (Hamilton
Standard), flown
PROPELLANT/FLUID N2H4 (per MIL-P-26536)
DDEGGETTE OPERATING OF O main 200 man main
PRESSURE, OPERATING 250 psig, 300 max. psig
PROOF 600 psig
BURST 1200 psig
DROP 40 psid
RATED FLOW 0.0009 1bm/s
LEAKAGE, INTERNAL 1.5x10 ⁻⁶ SCCS He
EXTERNAL 1.0x10 ⁻⁶ SCCS He
MASS 0.28 1bm
DIMENSIONS 0.018-inseat diam, 0.962 in. width less case,
1.627 in. length, 2.01 in. height
MATERIAL, BODY 304 CRES, 430 CRES speel
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 10/10 ms
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT 16/4 VGC
WATTS 5
ELECTRICAL CONNECTION JT1H-8-3P-(101)
MOUNTING Two 0.120/0.130-indiam holes spaced at 1.176/1.168 in.
OPERATING TEMPERATURE RANGE 40 to 160 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 500,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ref. P/N 15626-4
1011 101 101 1000 T

MANUFACTURER Wright Components, Inc.
PART NUMBER 15626-4
DESCRIPTION Pulse coaxial
QUALIFICATION STATUS Classified (Hamilton Standard), flown
PROPELLANT/FLUID_ N2H4
PRESSURE, OPERATING 250 psig
PROOF
BURST
DROP
RATED FLOW 0.0009 lbm/s
1 marta am - 117mmara 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
LEAKAGE, INTERNAL 1x10-6 SCCS He
EXTERNAL Same as internal
MASS 0.28 1bm
DIMENSIONS 0.018-inseat diam
SEA MEDITAT DODGE
MATERIAL, BODY
SEAT/SEAL AF-E-411
PORTS, SIZE & TYPE
THE PART BILDED
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 10/8 ms
VOLTAGE, OPERATING 24 to 32 Vdc PULL IN/DROP OUT 12.6/1.0
PULL IN/DROP OUT 12.6/1.0
WATTS 5 ELECTRICAL CONNECTION JT1H-8-3P-(101)
MOUNT'I NG
ODEDATING TEMPEDATIDE DANGE
OPERATING TEMPERATURE RANGE
VIDDATION DANDOM
VIBRATION, RANDOM_
SINE ACCELERATION
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 500,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ref. P/N 15626-2
MINDINO NEL TYN 13020 2
DATA SOURCE Wright Components catalog - 1984
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MANUFACTURER Wright Components, Inc
PART NUMBER 15637
DESCRIPTION Pulse coaxial solenoid, two-way, N.C.
QUALIFICATION STATUS X-ray experiment (Univ. of Wisconsin), flown
DECERT I ANTE CET LITE Mothano manage No.
PROPELLANT/FLUID Methane, propane, N2
PRESSURE, OPERATING 5 to 50 psia
PROOF 100 psia
BURST 200 psia
DROP 15 psia
DROP 15 psia RATED FLOW 15 to 20 SCCS
LEAKAGE, INTERNAL 1x10 ⁻⁵ SCCS N ₂ EXTERNAL Same as internal
MACC 0 22 lbm
MASS 0.32 lbm DIMENSIONS 2.48 in. LOA, 1.58 in. body length, 1.00 in. diam
DIMENSIONS 2.48 In. LOA, 1.58 In. DOGY TENGTH, 1.00 In. diam
MATERIAL BODY 430 and 300 series CRES
MATERIAL, BODY 430 and 300 series CRES SEAT/SEAL Nitrile
PORTS, SIZE & TYPE MS 24385-2 (both ends)
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/10 ms
VOLTAGE, OPERATING 28 Vdc (23 to 33 Vdc)
PULL IN/DROP OUT 16/4 Vdc
WATTS 5.6
ELECTRICAL CONNECTION Free leads
MOUNTING Port
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE_ ACCELERATION
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 2,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Continuous duty cycle
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15726-4
DESCRIPTION Dual coaxial
QUALIFICATION STATUS DSCS III (Hamilton Standard), flown
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 0 to 400 psig
PROOF
BURST
DROP
LEAKAGE, INTERNAL 1x10 ⁻⁶ SCCS N ₂
EXTERNAL Same as internal
MACC O AA lam
DIMENSIONS 0.015-in. seat diam
167 mile 7 3 7 DADIS
MATERIAL, BODY
SEAT/SEAL AF-E-411
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 10/10 ms
RESPONSE TIME, OPEN/CLOSE 10/10 ms VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT 12/1.7 Vdc
WATTS 10
ELECTRICAL CONNECTION Free leads
MOUNTING
ODEDARING REMORDARIDE DANCE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE_ ACCELERATION
ACCELERATION_
SHOCK
· · · · · · · · · · · · · · · · · · ·
LIFE, SERVICE
CYCLE 500,000 SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ref. P/N 15726-5, 15726-7
DATE COUNCE Which Company on the contribution of the contribution
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15726-5
DESCRIPTION Dual coaxial, solenoid
QUALIFICATION STATUS Indian Apple (Hamilton Standard), flown
QUALIFICATION STATUS INGTON APPLE (Hamilton Scandard), ITOWN
PROPELLANT/FLUID N2H4
PROPERTURNITY FROID N2H4
Demograph openating of the Annual of
PRESSURE, OPERATING 0 to 400 psig
PROOF 600 psig
BURST 1600 psig
DROP
RATED FLOW 0.001 lbm/s at 5.0 psid, 0.004 lbm/s at 80 psid
LEAKAGE, INTERNAL 2x10-6 SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.40 lbm
DIMENSIONS 0.015-in. seat diam, 3.2-in. body, 4.20 in. LOA,
1.5 in. diam
MATERIAL, BODY 430 CRES, 304 CRES, 17-7 CRES
SEAT/SEAL_AF-E-411
PORTS, SIZE & TYPE 0.128/0.125 in. o.d. by 0.017/0.0145-in. wall;
304L CRES tube inlet
TAMECRAL ELIMEN 10 .m nom 25 .m chc at inlot
INTEGRAL FILTER 10 µm nom., 25 µm abs at inlet
RESPONSE TIME, OPEN/CLOSE 10/10±0.5 ms repeat
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT 15/1.7
WATTS 10
ELECTRICAL CONNECTION Free leads
MOUNTING Three 4-40 UNC holes EQ SP on 1.250-in BC (outlet port)
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
OHOCK
LIFE, SERVICE 3 yr
LIFE, SERVICE 3 yr CYCLE 500,000
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME COST
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME COST
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME COST
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME COST
LIFE, SERVICE 3 yr CYCLE 500,000 SHELF 3 yr RELIABILITY LEAD TIME COST

MANUFACTURER Wright Components, Inc.
PART NUMBER 15726-7
DESCRIPTION Dual coaxial
QUALIFICATION STATUS DSCS III (Hamilton Standard), flown
DDODET LAND /ET HID N. U.
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 415 psia
PROOF_
BURST
DROP
RATED FLOW 0.1 lb thrust
THIS OF THE PARTY AND ACCOUNTS
LEAKAGE, INTERNAL 1x10 ⁻⁵ SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.44 lbm
DIMENSIONS 0.014-in. seat diam
MATERIAL, BODY
SEAT/SEAL AF-E-411
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 12/10 ms
VOLTAGE, OPERATING 24 to 32 Vdc
PULL IN/DROP OUT 12/1.7 Vdc
WATTS 10
ELECTRICAL CONNECTION Free leads
MOUNTING
ODEDAMING MEMORDAMIDE DANCE
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 500,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ref. P/N 15726-4, 15726-5
DATA COURCE Wright Components gatalog = 1994
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15750
DESCRIPTION Pulse coaxial
QUALIFICATION STATUS Classified (Avco), flown
PROPELLANT/FLUID NH3
PRESSURE, OPERATING 350 psig
PROOF
BURST
DAMED ELON
RATED FLOW
LEAKAGE, INTERNAL 2.5×10 ⁻⁷ SCCS He
EVTEDNAL 5-10-7 CCCC Ho
MASS 0.27 lbm
DIMENSIONS 0.018-in. seat diam
DIFILINGIONS U.VIO III. SCAC CIAM
MATERIAL, BODY
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/8 ms
VOLTAGE, OPERATING 25 Vdc
PULL IN/DROP OUT 16/4 Vdc
WATTS 3
ELECTRICAL CONNECTION JT1H-8-3P
MOUNTING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 1,000,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15751
DESCRIPTION Pulse coaxial, solenoid, N.C. w/thruster
QUALIFICATION STATUS Earth Limb Measurement Satellite (Grumman), flown
PROPELLANT/FLUID N2 (clean GN2 per MIL-P-27401B)
PRESSURE, OPERATING 15 to 75 psig
PROOF 200 psig
BURST 250 psig
DROP
RATED FLOW 0.05 lb thrust
LEAKAGE, INTERNAL 2 SCCS He
EXTERNAL Same as internal
MASS 0.60 lb
DIMENSIONS 2.60 in. length w/o nozzle, 1.6 in. height w/o leads
and mount, 1.0 in. width w/o mount MATERIAL, BODY 430F CRES, 303 CRES SEAT/SEAL Fluorosilicone
MATERIAL, BODY 430F CRES, 303 CRES
SEAT/SEALFluorosilicone
PORTS, SIZE & TYPE MS 33656-6 inlet
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 20/20 ms
VOLTAGE, OPERATING 28 Vdc
PULL IN/DROP OUT 16/4 Vdc
WATTS 6
ELECTRICAL CONNECTION Free leads
MOUNTING Three 8-32 UNF2B holes EQ SP at outlet end on
1.50-indiam BC
OPERATING TEMPERATURE RANGE -80 to 150 °F
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 500,000 min.
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Coil resistance 78±3 Ω at 75 °F; thruster may be remova-
ble. Specs: propellants per MIL-P-27401B, MIL-P-27407; test per
WCI ATP 15751; environment per Grumman spec number B71P26DCV905
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15770
DESCRIPTION Pulse coaxial, solenoid, N.C.
QUALIFICATION STATUS International Ultraviolet Explorer Satellite
(Hamilton Standard), flown
PROPELLANT/FLUID N2H4 (per MIL-P-26536)
PRESSURE, OPERATING 400 psia
PROOF 600 psig
BURST 1600 psig
DROP 28 psid max.
RATED FLOW 0.0250 lb/s
I Datta on Tillmining Control Control
LEAKAGE, INTERNAL 2×10 ⁻⁶ SCCS He
EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.28 lbm (not including lead wires)
DIMENSIONS 2.87 in. LOA, 1.664 in. width, 1.211 in. height
MARION TAT. DODGE
MATERIAL, BODY
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE 0.190/0.180-in. diam by 0.0175/0.0145-in. wall,
304L CRES tube inlet
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 15/8 ms ±0.0002 s repeat
VOLTAGE, OPERATING 24 to 28 Vdc
PULL IN/DROP OUT 16/4 Vdc WATTS 13.2
ELECTRICAL CONNECTION Free leads
MOUNTING Four 0.120/0.130-indiam holes on 1.426 by 1.312-in.
rectangle (outlet)
CECLANULE CONTELL
1000:11410 (000100)
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM
OPERATING TEMPERATURE RANGE <u>Fluid</u> , 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION
OPERATING TEMPERATURE RANGE <u>Fluid</u> , 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min.
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME COST
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F VIBRATION, RANDOM SINE ACCELERATION SHOCK LIFE, SERVICE CYCLE 500,000 min. SHELF RELIABILITY LEAD TIME COST

MANUFACTURER Wright Components, Inc.
PART NUMBER 15770-5
DESCRIPTION Pulse
QUALIFICATION STATUS TRW, qualified
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 400 psia
PROOF
BURST
DROP
RATED FLOW 0.025 lb/s
LEAKAGE, INTERNAL 1 SCCH GN2
EXTERNAL 1 SCCH GN2 EXTERNAL 1x10-6 SCCS He
MASS 0.33 1bm
DIMENSIONS
MATERIAL, BODY
SEAT/SEAL AF-E-411
PORTS, SIZE & TYPE
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 17/8 ms
τιστ πλου συμπιτικος ου τίδο
PULL IN/DROP OUT 16/2 Vdc
WATTE 16 A
ELECTRICAL CONNECTION Free leads
MOUNTING
FIGURI INC
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
SINEACCELERATION
SHOCK
000.
LIFE, SERVICE
CYCLE 500,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Ref. P/N 15770
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Wright Components, Inc.
PART NUMBER 15771
DESCRIPTION Pulse coaxial
QUALIFICATION STATUS IUE (Hamilton Standard), flown
PRODELL AND LELLIED AT IL
PROPELLANT/FLUID_N2H4_
PRESSURE, OPERATING 400 psia
PRESSURE, OPERATING 400 psia
PROOF 600 psig
BURST 1600 psig
DROP 8.4 psid
RATED FLOW 0.0005 lb/s
TENKACE INTERNAL 2-10-6 SCCS HO
LEAKAGE, INTERNAL 2x10 ⁻⁶ SCCS He EXTERNAL 1x10 ⁻⁶ SCCS He
MASS 0.20 lbm (not including lead wires)
DIMENSIONS 2.877 in. LOA, 1.51-in. mound diam, 0.870-in. body diam
DIPLEMSTORS 2.877 III. LOA, 1.31-III. MOUND GIAM, 0.870-III. DOGY GIAM
MATERIAL, BODY
SEAT/SEAL AF-E-102
PORTS, SIZE & TYPE 0.128/0.125-indiam by 0.0175/0.0145-in. wall,
304L CRES tube inlet
INTEGRAL FILTER
RESPONSE TIME, OPEN/CLOSE 10/5 ms
VOLTAGE, OPERATING 24 to 28 Vdc PULL IN/DROP OUT 16/2 Vdc
WATTS 5.4
ELECTRICAL CONNECTION Free leads
MOUNTING Three 4-40 UNC-2B holes on 1.25-indiam BC
MOUNTING THEE 4-40 ONC-2B HOTES ON 1.25-IIICIAM BC
OPERATING TEMPERATURE RANGE Fluid, 40 to 160 °F; ambient, 40 to 200 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE 500,000 min.
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS
THE PERIOD
DATA SOURCE Wright Components catalog - 1984

MANUFACTURER Hughes Aircraft Company
PART NUMBER 3354474 DESCRIPTION Thruster assembly w/catalyst-bed gas generator and
valve
QUALIFICATION STATUS Intelsat IV A
PROPELLANT/FLUID_N2H4_
PRESSURE, OPERATING 50 to 300 psia inlet (34 to 206 N/cm ²) CHAMBER PROOF BURST
RATED FLOW
TOTAL THROUGHPUT
TOTAL IMPULSE 160,000 lbf-s (711,680 N-s)
MASS
DIMENSIONS
MATERIAL, BODY
CATALYST/CORE Shell 405ABSG; 14 to 18 or 20 to 30 mesh
DODUC CIZE C UVDE
FORTS, SIZE & TYPE
VOLTAGEWATTS
ELECTRICAL CONNECTION
DUTY CYCLE On, 40 and 117 s nom.; off, 1160 and 1083 s (pulse)
MOUNTING
HOONIINO
OPERATING TEMPERATURE RANGE
WIDDATION DANDOM
VIBRATION, RANDOM
SINE_ACCELERATION_
SHOCK
LIFE, SERVICE 2000 s max. ontime, 39,177 s total ontime CYCLE 899 cold starts; 55,600 pulses
SHELF_ RELIABILITY
LEAD TIME 9 months in 1974
COST \$25,000 in 1974
REMARKS Specification for whole assembly except as noted; catalyst
bed screen retained
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER The Marquardt Company PART NUMBER T19093 (MDAC spec 029-71B)
PART NUMBER T19093 (MDAC spec 029-71B)
DESCRIPTION Spiral passage, resistance heater
QUALIFICATION STATUS Developed for MORL, not qualified
(McDonnell Douglas)
PROPELLANT/FLUID Water
PRESSURE, OPERATING 3 atm +2/-20 psi (44.1 psia)
CHAMBER
PROOF
BURST
RATED FLOW 0 to 0.250 g/s
TOTAL THROUGHPUT
TOTAL IMPOLSE
MASS
DIMENSIONS
MATERIAL, BODY CRES shell, MIN K-503 insulation
CATALYST/CORE Chromalox CI-505R neater
DADIES STOR & WIND
PORTS, SIZE & TYPE
VOLTAGE 120 Vac
WATTS 700
ELECTRICAL CONNECTION_
DUTY CYCLE
MOUNTING
OPERATING TEMPERATURE RANGE Inlet, 32 to 70 °F; outlet, 400±40 °F
OPERATING TEMPERATURE RANGE INTEC, 32 CO 70 F, OUCTEC, 400140 F
VIRDATION PANDOM
VIBRATION, RANDOM
ACCEL EDATION
ACCELERATION
SHOCK
LIFE, SERVICE
CYCLE
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Includes power controller
NEITHING THOUGHD POWER CONTESTED
DATA SOURCE Marguardt report (ref. 12)

MANUFACTURER Rocket Research Corporation
PART NUMBER MR-50M DESCRIPTION 5-1bf N ₂ H ₄ thruster w/gas generator
DESCRIPTION 5-151 NYINA CHICASCEL WYGAS GENERACOL
QUALIFICATION STATUS Intelsat V
PROPELLANT/FLUID_N2H4_
PRESSURE, OPERATING 320 to 200 psia
CHAMBER 115 to 80 psia
PROOF_
BURST
RATED FLOW 0.0271 to 0.0193 lbm/s TOTAL THROUGHPUT 223 lbm
TOTAL IMPULSE
MASS 0.82 lbm w/o valve (1.30 lbm w/valve)
DIMENSIONS
MATERIAL, BODY
MATERIAL, BODY
CATALYST/CORE_
PORTS, SIZE & TYPE VOLTAGE 42 Vdc (valve)
VOLTAGE 42 Vdc (valve)
WATTS 22 W (Valve)
ELECTRICAL CONNECTION
DUTY CYCLE
MOUNTING
OPERATING TEMPERATURE RANGE
VIRDATION DANGOM
VIERATION, RANDOM
SINE ACCELERATION SHOCK
SHOCK
LIFE, SERVICE 1.28-hr steady state run time
CYCLESHELF
RELIABILITY
LEAD TIME
COST
REMARKS Assembled w/Parker Hannifin valve; expansion ratio, 40:1
DATA COURCE Pogket Poggarah product data shoot - 1996

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MANUFACTURER Rocket Research Corporation
PART NUMBER MR-74A
DESCRIPTION N2H4 thruster assembly w/shell 405 catalyst gas
generator, Clayborne heater
QUALIFICATION STATUS ATS F and G
PROPELLANT/FLUID_E2H4
PRESSURE, OPERATING 395 to 125 psia inlet (272 to 86 N/cm ²)
CHAMBER
PROOF 600 psia (413 N/cm ²)
RIDC#
RATED FLOW TOTAL THROUGHPUT
TOTAL THROUGHPUT
TOTAL IMPULSE 18,000 lbf-s
DIMENSIONS
MATERIAL, BODY 347 CRES
CATALYST/CORE 25 to 30 mesh; shell 405
PORTS, SIZE & TYPE
VOLTAGE 20 VCC
WALLO 1.33
ELECTRICAL CONNECTION_
DUTY CYCLE_
MOUNTING
ODEDAMING MEMBEDAMINE DANCE 200 to 250 OF /O2 to 176 OC)
OPERATING TEMPERATURE RANGE 200 to 350 °F (93 to 176 °C)
WIDDAWION DANDOM 170 wmo
VIBRATION, RANDOM 17g rms
SINE
ACCELERATION
SHOCK
LIFE, SERVICE 1.81x10 ⁵ s ontime
CYCLE 10 ⁵ , (2x10 ⁴ for cold starts)
SHELF_ RELIABILITY
LEAD TIME
REMARKS Specifications quoted for whole assembly or as noted;
screen re ained catalyst bed
DAMA COUDCE ITADI lights / wof 0\
DATA SOURCE IITRI lists (ref. 8)

MANUFACTURER Rocket Research Corporation
PART NUMBER MR-103C
DESCRIPTION 0.2 lbf thruster with shell 405 catalyst gas generator
QUALIFICATION STATUS SATCOM, SPACENET, G-Star (RCA)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 420 to 70 psia
CHAMBER 370 to 60 psia
PROOFBURST
RATED FLOW_ 0.001 to 0.0002 lbm/s
TOTAL THROUGHPUT 173 lbm
TOTAL IMPULSE
MASS 0.28 lbm w/o valve (0.73 w/valve)
DIMENSIONS 2.28 in. by 1.35 in. diam (w/o valve)
MATERIAL, BODY
CATALYST/CORE
PORTS, SIZE & TYPE VOLTAGE 28 Vdc (valve) WATTS 9 W (valve)
VOLTAGE 28 Vdc (valve)
WATTS 9 W (valve)
ELECTRICAL CONNECTION
DUTY CYCLE
MOUNTING Three-bolt flange
MOONTING THEE BOTC TIMING
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM_
SINE
ACCELERATION
SHOCK_
TIPE CEDUICE 10 hr stoods state run time
LIFE, SERVICE 18-hr steady state run time CYCLE 410,000
SHELF
DELIABLITAN
LEAD TIME
COST
REMARKS Assembled with Wright dual seat valve; expansion ratio,
100:1
4 V V 1 4
DATA SOURCE Rocket Research product data sheet - 1986

MANUFACTURER Rocket Research Corporation PART NUMBER MR-111
DESCRIPTION 0.45 lbf N2H4 thruster w/shell 405 catalyst-bed gas
generator
QUALIFICATION STATUS Intelsat V (Ford)
PROPELLANT/FLUID_N2H4_
PRESSURE, OPERATING 320 to 120 psia
CHAMBER 184 to 84 psia
PROOF
RATED FLOW 0.002 to 0.0009 lbm/s
TOTAL THROUGHPUT 272 lbm
TOTAL IMPULSE
MASS 0.259 lbm w/o valve (0.704 lbm w/valve) DIMENSIONS 3.10 in. by 1.40 in. diam (w/o valve)
DIMENSIONS 3.10 in. by 1.40 in. diam (w/o valve)
MATERIAL, BODY
CATALYST/CORE
PORTS SIZE & TVDE
PORTS, SIZE & TYPE
WATTS IZW (VAIVE)
ELECTRICAL CONNECTION
DUTY CYCLE
MOUNTING Three-bolt flange
OPERATING TEMPERATURE RANGE
VIBRATION, RANDOM
SINE
ACCELERATION_
SHOCK
LIFE, SERVICE 2.36-hr steady state run time CYCLE 420,000
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Assembled with Wright components valve; expansion ratio,
200:1
DATA SOURCE Rocket Research product data sheet - 1986

MANUFACTURER Rocket Research Corporation
PART NUMBER MR-111A
DESCRIPTION 0.5 lbf thruster w/shell 405 catalyst-bed gas
generator
QUALIFICATION STATUS ERBS (Ball Aerospace)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 370 to 60 psia
CHAMBER 204 to 45 psia
PROOF
BURST
RATED FLOW 0.00223 to 0.00047 lbm/s
TOTAL THROUGHPUT 127 lbm
TOTAL IMPULSE
MASS 0.28 lbm w/o valve (0.76 lbm w/valve)
DIMENSIONS 3.10 in. by 1.40 in. diam (w/o valve)
MATERIAL, BODY
CATALYST/CORE
PORTS, SIZE & TYPE
VOLTAGE 28 Vdc (valve)
- 123 MMA - A - 13 - / 2 3
ELECTRICAL CONNECTION
DUTY CYCLE
MOUNTING Three-bolt flange
NOONTINO INTEG BOTC FIGURE
OPERATING TEMPERATURE RANGE
OF ENATING TENTE ENATORE NAMED
VIEDATION DANDOM
VIBRATION, RANDOM
SINE
ACCELERATIONSHOCK
STOCK
LIFE, SERVICE 15-hr steady state run time
CYCLE 15-11 Steady State full time
CYCLE 15,082
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS Assembled with Wright Components valve
DATA SOURCE Rocket Research product data sheet - 1986

MANUFACTURER Rocket Research Corporation
PART NUMBER
DESCRIPTION Catalyst bed w/integral pressure transducer and
temperature sensor
QUALIFICATION STATUS Space shuttle orbiter and solid rocket
Doosters N. H. H. D. N. H.
PROPELLANT/FLUID_N2H4_
Design of the American 1900 main
PRESSURE, OPERATING 1300 psia
CHAMBER
PROOF
DUK51
RATED FLOW 0.265 lbm/s nom., 0.310 lbm/s max.
TOTAL THROUGHPUT
TOTAL IMPULSE
rass
DIMENSIONS
MATERIAL, BODY CATALYST/CORE
DODMC CIZE C MIZE
PORTS, SIZE & TYPE
VOLIAGE
11A 1 1 1 1
ELECTRICAL CONNECTION_
DUTY CYCLE_
MOUNTING
OPERATING TEMPERATURE RANGE Input, 45 to 150 °F; output 1700 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK 40g
LIFE, SERVICE 10 yr minimum (including storage) 60 hr
CYCLE 100 minimum
SHELF
RELIABILITY
LEAD TIME
COST
REMARKS 20 hr TBO, serviceable
DATA SOURCE AIAA paper 83-1381 (ref. 13)

MANUFACTURER TRW
PART NUMBER MRE-4 series
DESCRIPTION Thruster assembly w/catalyst-bed gas generator and
Parker valve
QUALIFICATION STATUS Intelsat III, DSCS II, Atmosphere Explorer
(flown)
PROPELLANT/FLUID N2H4
PRESSURE, OPERATING 600 psia inlet
CHAMBER
PROOF 1000 psia (681 N/cm ²)
BURST 1200 psia (816 N/cm ²)
RATED FLOW
TOTAL THROUGHPUT 500 1bm (227 kg)
TOTAL IMPULSE 115,000 lbf-s (511,500 N-s)
MASS
DIMENSIONS Bed, 1.06 in. length by 0.75 in. diam (2.7 by 1.9 cm)
DIMENSIONS BEQ, 1.00 III. Tengen by 0.75 III. Gram (2.7 by 1.9 cm)
MATERIAL, BODY Haynes 25
CATALYST/CORE Shell 405ABSG 14-18 or 20-30 mesh
CATALIST/ CORL SHETT 403ADSG 14-18 Of 20-30 MeSH
PORTS, SIZE & TYPE
VOLTAGE
WATTS
ELECTRICAL CONNECTION
DUTY CYCLE Pulse, nom. 0.883 s off, 1.7 s on
DOTT CICLE PUISE, HOM. 0.003 S OLL, 1.7 S OH
MOUNTING
MONTING
OPERATING TEMPERATURE RANGE 40 to 150 °F (5 to 66 °C)
OPERATING TEMPERATURE RANGE 40 CO 130 F (3 CO 60 C)
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
TIME CENTICE
LIFE, SERVICE
CYCLE 177 cold starts; 101,944 pulses
SHELF
RELIABILITY
LEAD TIME 8 months for assembly in 1974
COST
REMARKS Specifications for whole assembly except as noted; screen
retained catalyst bed
DATA SOURCE Aerospace Corporation report (ref. 9)

TEMPERATURE TRANSDUCER

MANUFACTURER Weed Instrument Company, Inc.
PART NUMBER Model A9506-4
PART NUMBER Model A9506-4 DESCRIPTION Platinum resistance sensor
QUALIFICATION STATUS
PROPELLANT/FLUID
INDICATED TEMPERATURE, MAX MIN
MIN
PRESSURE, OPERATING 0 to 90 psig
PROOF
BURST
MASS
DIMENSIONS 3.38 in. by 0.62 in. hex
MATERIAL Platinum, 316 CRES
PORT, SIZE & TYPE
VOLTAGE, INPUT
WATTS
WATTS SIGNAL 0.003850 $\Omega/\Omega/^{\circ}$ C, 100 Ω element FIRSTRICAL CONNECTION Mator 11/M92722 (75B0902N
ELECTRICAL CONNECTION MALES W/MOS/23//SRUOUSN
MOUNTING MS 33656E4 modified (0.4375-20-UNJF-3A)
OPERATING TEMPERATURE RANGE65 to 500 °F
VIBRATION, RANDOM
SINE
ACCELERATION
SHOCK
LIFE, SERVICE_
CYCLE
SHELF_
RELIABILITY
LEAD TIME
COST
REMARKS
DATA SOURCE Weed drawing 0550-009-0002T Rev. 1 - 1985

TEMPERATURE TRANSDUCER

MANUFACTURER Weed Instrument Company, Inc.
PART NUMBER Model A9515
DESCRIPTION Surface sensor
QUALIFICATION STATUS
PROPELLANT/FLUID
INDIALMED MENDEDAMINE MAY
INDICATED TEMPERATURE, MAX
MIN_
PRESSURE, OPERATING
PROOFBURST
MASS
DIMENSIONS 0.425 by 0.425 by 0.100 in. (1.080 by 1.080 by
0.254 cm)
MATERIAL
PORT, SIZE & TYPE
VOLTAGE, INPUT
WATTS
SIGNAL 0.00385 \pm 0.00003 $\Omega/\Omega/^{\circ}$ C; 500 Ω element ELECTRICAL CONNECTION Two 12-in. wire leads
ELECTRICAL CONNECTION Two 12-in. wire leads
MOUNTING Adhesive
OPERATING TEMPERATURE RANGE -67 to 311 °F (-55 to 155 °C)
MIDDATION DANDOM
VIBRATION, RANDOM
SINE ACCELERATION
ACCELERATION
SHOCK
LIFE, SERVICE
SHELF 5 yr REIJIABILITY
RELIABILITY
LEAD TIME
COST
REMARKS Rated current, 5 mA min.
DATA SOURCE Weed product data sheet - 1985

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TABLE I IOC PLUS GROWTH STATION ANNUAL WASTE GAS FRODUCTION/ BOSCH ECLSS (1bm/year)

FLUID	1995	1996	1997	1998	1999	1 2000	2001	2002	2003	1 2004
(BOSCH ECLSS)	¦	¦		;				!		
argon	1264	1264	1264	1264	1348	1348	1348	1026	1026	1109
CO2	208	208	208	451	745	503	260	i ! 260 !	; 1 260 !	; 312
CO2/CH4	. 0	. 0	0	0	0	0	0	0	. 0	0
FREON	; ; 6	} ; 6 !	! ! 6	 6 !	} } 8	: : 8	: : 8 :	¦ ! 8 !	; ! 8 ! :	
HELIUM	36	36	124	896	813	813	813	813	813	817
HYDROGEN	! ! 182 !	! ! 182 !	1 1 322 !	1 1 322	1 1 702	! ! 394 !	! ! 254 !	254 254	! ! 254 ! !	325 l
NITROGEN	1680	1680	1680	1835	2647	2483	2338	2108	2108	2765
OXYGEN	! 243 !	! ! 243 !	! ! 243 !	! ! 243 !	! ! 335 !	: : 335 !	: : 335 :	335	 335	426 ¦
XENON	88	88	! 88	88	110	110	110	110	110	132
KRYPTON :	B0 :	8 0	80	 80 	; ; 80 ;	 80 	 	80		80 ¦ !
TOTALS:	3787	3787	4015	5185	6788	60B4	5546	4994	4994 1	5975

IOC PLUS GROWTH STATION ANNUAL WASTE GAS PRODUCTION/ SABATIER ECLSS (1bm/year) TABLE II 1 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | FLUID (SABAT.ECLSS): 1 1264 | 1264 | 1264 | 1264 | 1348 | 1348 | 1348 | 1026 | 1026 | 1109 | ARGON 312 745 1 503 1 260 1 260 1 451 1 208 | 208 1 208 1 C02 2256 | 2256 | 2256 | 3384 | 3384 | 3384 | 3384 | 3384 | CO2/ 2256 1484 | 1484 | 1484 | 1484 | 2226 | 2226 | 2226 2226 | 2226 | CH4 - 1 8 1 8 : 8 1 8 ; 6 1 8 1 FREON 6 1 813 | 41 1 45 1 813 1 813 | 813 | 896 1 124 | HEL1UM 36 1 44 | 492 1 184 : 182 1 42 1 42 1 182 | **HYDROGEN** 2108 1 2765 1 2108 1835 | 2647 : 2493 2338 1 2338 | 1680 1680 1 NITROGEN 335 1 335 | 335 | 335 1 243 335 | 243 | OXYGEN 243 ! 243 1 132 1 110 | 110 110 1 110 ; 110 : 88 1 88 ; 88 ; 88 1 XENON B0 1 80 1 80 1 80 1 80 1 80 1 80 1 80 1 KRYPTON 80 1 1 7569 : 7569 : 7937 : 9107 : 12890 : 11878 : 10946 : 10394 : 10394 : 13195 : TOTALS:

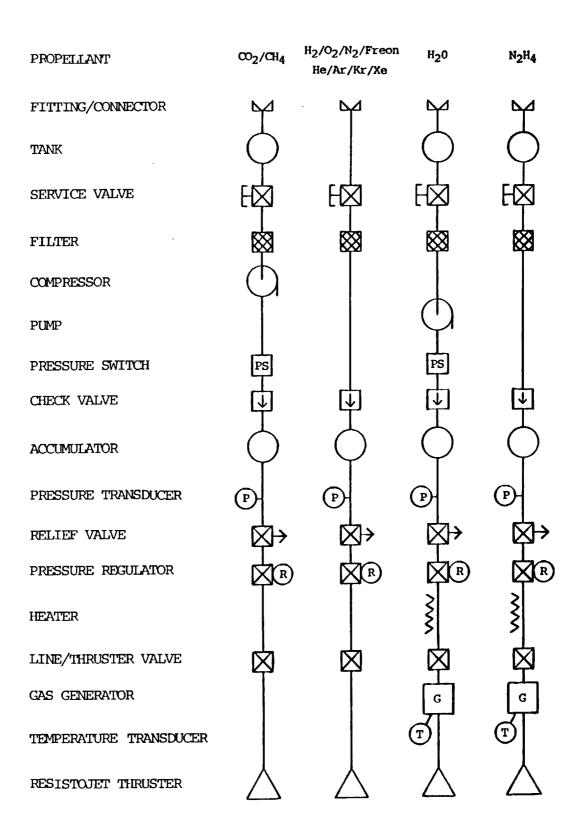


FIGURE 1. Simplified Component/System Comparison (Note: Order and number of components in system may vary, and components may be deleted.)

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1. Report No. NASA CR-180834	2. Government Accession No.	Recipient's Catalog No.			
4. Title and Subtitle Component Data Base for S Auxiliary Propulsion	5 Report Date January 1988 6. Performing Organization Code				
7. Author(s) Clayton H. Bader		8. Performing Organization Report No None (E-3856) 10. Work Unit No. 481-02-02			
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12 Sponsoring Agency Name and Address National Aeronautics and Lewis Research Center Cleveland, Ohio 44135-319		Contractor Report Final 14 Sponsoring Agency Code			
15. Supplementary Notes Project Manager, James S. Lewis Research Center.	Sovey, Space Propulsion Te	chnology Division, NASA			
16. Abstract					
of its operational versat ceived as a guide to desi pulsion system. It is di should have application t mental Control and Life S oratory (MTL), and the Walikely be quite useful in including satellites, fre report is a catalog of th	ility, efficiency, and dural gners and planners of the S rected to the low thrust re o other station concepts or upport System (ECLSS), Manu- ste Fluid Management System the same capacity for othe eflyers, explorers, and man-	sistojet concept, though it systems such as the Environ-facturing and Technology Lab-(WFMS). The report will r non-Space Station systems euvering vehicles. The or the most significant feed			
17 Key Words (Suggested by Author(s)) Resistojet; Space Station Components	, , , , , , , , , , , , , , , , , , , ,	fied - Unlimited Category 20			
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Lewis Research Center Cleveland, Ohio 44135-3191		14	Sponsoring Agency Co	de	
15. Supplementary Notes Project Manager, James S. S Lewis Research Center. The report as a microfiche supp	Component Data Ca				
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17. Key Words (Suggested by Author(s)) Resistojet; Space Station; Components	Propulsion; U	stribution Statement Iclassified Ubject Cate	- Unlimited gory 20		
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